Textile World

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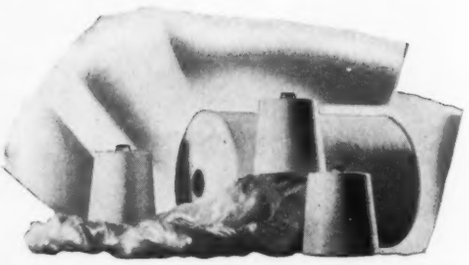

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Textile World

December, 1934

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Editor: DOUGLAS G. WOOLF

Don't Count on the States!

NO fair-minded person can read the "Platform for Recovery" proposed by the National Association of Manufacturers without recognizing in it an honest effort to contribute constructive thinking toward the solution of our current problems. Personally, we think no higher praise can be given this type of enterprise.

Naturally, the platform will not meet the views of all. It will be too radical for some, too conservative for others. But that's nothing against it.

The section devoted to the NRA is probably of the greatest interest to industry. As originally drafted in committee, it proposed: (1) Separation of the two fields of labor policies and fair trade practices in both the law and the administration of it, on the grounds that these "totally dissociated" phases do not belong together; (2) enactment of legislation providing for temporary continuation, for a year after the expiration date of the NIRA, of the labor provisions of existing codes, with some modifications, with the understanding that these labor policies would subsequently be the subject of legislation by the respective States; (3) enactment by Congress of a Fair Trade Practice Act which would provide for temporary experimentation with codes of fair competitive practices by individual industries under proper supervision and enforcement regulations—such legislation later to become permanent if trial proved it to be beneficial to industry and in the public interest.

▼

These proposals were based on the fundamental belief that not only are labor policies and fair trade practices incompatible companions—but that, still further, the former belong within the respective States, whereas the latter can be administered through a Federal act.

We found ourself in disagreement with the committee on this point and therefore were gratified when the association later corrected what in our opinion would have been a serious error. Since the same type of thinking is bound to come up again, a consideration of this question seems advisable.

Although we recognize both the question of constitutionality involved in national labor legislation and the difficulty of Federal supervision of local employment relations, nevertheless we do not want to see our hopes for future social advance thrown back upon the tender mercies of the several States. To expect much from that source is merely to close one's eyes to past history and to trust blindly to some sort of miraculous change of heart in the future.

The textile industry knows what this is all about. It has had its own bitter experience with sectional and inter-State competition. It can look back upon years of wasteful antagonisms. Furthermore, not only does lack of Federal coordination mean a nasty competitive situation within a specific industry, but it practically defeats any hope for progressive social legislation. Let a State "stick its neck out"—as did Massachusetts—and then, after its bitter experience see how many other States care to follow its lead and become a victim in the cause of social progress.

▼

Let us be understood: We are *not* in favor of national legislation imposing a specific work-week upon all industry. But we *are* in favor of national legislation which will permit an industry to enforce limitations on the work-week within its own boundaries, regardless of State lines.

Without such provision, the will of the majority cannot be made to prevail. We are not guessing on this point. All we need to do is to think back on the "55-50" and night-work plans of the cotton textile industry. A small dissenting minority was sufficient to defeat the purpose of the majority. If we had had national provision for enforcement, based on penalty for non-compliance, the story would have been different.

Fortunately, the N.A.M. resolution as finally adopted recognized this point of view. However it will be necessary again and again to resist the other attitude. Although the latter is advocated by many sincere persons, we are convinced it is not feasible in our present stage of industrialization and in a country composed of 48 states.

The Editor Says:

THIS is what we have been listening to quite frequently lately:

"I'm convinced, Mr. Woolf, that we've started the wrong way to get ourselves out of the depression. We've been figuring that, by cutting down production, we could increase employment. We've thought that, the fewer hours each man works, the more there is for some others to do.

"Now, instead of that, if we could only realize that our one source of wealth is production, we would increase the output of every machine and every man to the maximum, reduce costs per unit of product, thereby increase consumptive ability of people, and thus re-establish a high level of productivity and utilization.

"Specifically, if we took all the bars off men and machines, we would make their product available at a low price."

Don't we know it! This "new" discovery is being announced from a different source every day. The economy-of-plenty addicts are out to rout their economy-of-scarcity opponents. And the former are gathering new recruits every day.

BUT—

So far as we know, that was the psychology that dominated this nation in the 1920's. We thought then that there was no limit to the extent to which we could increase production, reduce costs, elevate the standard of living, and thereby create a new and permanent standard of prosperity.

What happened? Some of those admittedly needed goods started to back up. We found that, no matter how cheaply we produced, we couldn't keep on disposing of the product. Result: 1930, 1931, 1932. Certainly, there were no artificial limits in those years. The sky was the limit for hours-per-employee-per-week; the bowels of the earth were the limit for wages and prices.

So what?

Let the economy-of-plenty advocates have their say:

"All you claim is quite true but the only trouble is that we haven't perfected our science of distribution as we have our science of production. If we once devise a scheme for the distribution of this cheap production, we will have solved the problem."

BUT—again there is a BUT—that answer in turn answers itself. Until we *have* solved the distribution problem, let us not talk unlimited production.

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What Would Happen?

LET us get our personal attitude straight on the record.

We believe that, theoretically, we should produce at a maximum efficiency compatible with certain restrictions based on social considerations. We also believe that we are producing today at a very low level of efficiency—and that this is not so good. We should like to see a premium restored on the best plant, with the best management and the best merchandising policies—again, with due regard to certain social policies.

But suppose we did, right now, lift all present restrictions. That hypothetical "best" company would find competition from Tom, Dick and Harry who could chisel wages, snipe at prices, run overtime to produce at a loss—and eventually end in bankruptcy. BUT before that end was reached, the "best" company would also suffer. It might not itself face bankruptcy but at least it might find that there was no longer a substantial premium on good management.

"Might," did we say? "Would," we should say—because past history attests that fact.

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To Sum Up

LET us try to draw a net conclusion from all this conversation.

First, as to the social considerations mentioned above. We doubt that a very large percentage of thinking men want to go back to unrestricted operations so far as hours per week per employee are concerned. Most of them will, we are confident, resist a 30-hour week as economically unsound, and, in fact, will resist any blanket regulation, but at the same time they do not want to go back to 55, 60, 65 hours per week. There should be restriction within a given industry.

On this same social side, we agree 100% with those who claim that there is no justification for the so-called "grave-yard" shift except in continuous-process industries and in fields where continuous service is necessary for human health and safety. We see no earthly reason why people should work in factories in the wee small hours of the morning.

Second, as to the economic side. We are no more anxious than the next man to see conditions "frozen." Putting an end to technological advance would be an economic crime. We must not accept all present restrictions as parts of our permanent policy. If we get out too far on that limb, there will be trouble ahead. Consequently, the obvious line of approach is to concentrate on that distribution problem. It is not insoluble.

In addition, we should consider certain specific phases of the limitation policy. One has to do with goods having seasonal peaks. Certain rayon weavers have complained to us that the machine-hour restrictions definitely curtail total consumption of their product. This requires investigation. Then, too, there is the question of eventual use of budgetary control of inventories and production as a method of approach to sanity and balance. Its possibilities should be studied carefully.

But, while we are getting out of the emergency, let us not fall back on shibboleths like the "economy of plenty" idea. Let us first get most of the unemployed back at jobs—not jobs created by relief projects but jobs sponsored by industry—jobs based on low standards of production, if necessary, but at least jobs.

Then, let us talk "plenty" again.

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To Change the Subject

WE WERE expressing to a friend our opposition to redemption of veterans' certificates at this time. Our friend—a realistic chap if ever there was one—remarked: "Well, I suppose you'd favor a law giving a bonus to all editors whose last names begin with W." As a matter of fact, his comment was not quite in order as we happen to have a bonus certificate which we should enjoy cashing. Nevertheless he pointed out a very interesting principle.

This selfish instinct to which he referred requires a little more respectful understanding than it usually gets. Instead of love making the world go round, as an old popular song insists, we wonder if selfishness doesn't do that job.

We say this reluctantly. We possess just enough idealism to note with regret that the sum total of human selfishness hasn't been reduced perceptibly over the years—at least so far as we can tell from reading and observation. But, in our more hard-headed moments, we wonder if we aren't expecting too much.

Why should self-interest be yielded? Actually, it has done more to advance human welfare than any other instinct. Most of the so-called unselfish people we know are hopeless folks.

Well, then, what ought we do about selfishness—for certainly some of its manifestations are unpleasant.

Obviously, there is only one answer: it is necessary for people to broaden their concepts of self-interest. And that is exactly what is going on constantly, our own doleful observations to the contrary notwithstanding.

This thought may sound complicated but it's really very simple. It has been expressed often as "intelligent self-interest."

Take a case in point: Instinct has always impelled an employer to pay as little for his labor as he possibly could. That was not because he was a mean old skinflint but because he was a pretty sound guy. But gradually he found that, by keeping wages low, he was depriving himself of prosperous customers. Eventually, therefore, employers came around to the high-wage theory—not because they suddenly went philanthropic but because intelligent self-interest impelled them that way.

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So, A Selfish Xmas to You!

WE are not trying to pretend that we have discovered a new school of philosophy. Actually, this is old, old stuff. But we are setting it down at this particular time because we think its application to current national developments helps to make the picture clear.

Most of us, we feel, have been expecting too much during the last year and a half. We have been expecting human nature to change suddenly, whereas we should have known that everybody would eventually judge every new suggestion or experiment in the light of its effect on his or her own affairs. Is there any wonder, then, that there has been a grand discord?

But—and here is the Christmas season thought in all this—we have sensed recently the gradual shaping of broader and more intelligent concepts of self-interest insofar as affected by national developments. We feel that this type of understanding is now asserting itself. Not unselfishness, mind you, but informed selfishness.

And that process, dear reader, has been speeded up considerably since election!

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Sounds Good to Us

PETER VAN HORN speaks our language. At the silk and rayon convention under the auspices of the National Federation of Textiles, he advocated (1) an industrial relations department of the association to deal with the highly important problems of employer-employee relations; (2) a coordinated technical research effort; and (3) a co-relation of associational enterprise in the textile industry.

On the latter point, he said, in effect: "It is absolutely ridiculous that we should have 300 textile trade associations spending possibly some $8,000,000 a year. The reason is that most of them have prima donna executives like myself who do not want to subordinate themselves to others. Personally, I am going to push for some sort of amalgamation, and I am perfectly willing to take fourth, fifth or tenth place in the procession. Fortunately, certain of the textile publications have been advocating such a step. Probably it is not feasible to go the whole way now, but at least we can take the intermediate step of an organized conference whereby the efforts of all the branches of the industry may find coordinated expression."

We have repeatedly advocated each of these three steps: (1) industrial relations activities on the part of associations; (2) organized technical research programs; (3) coordination of existing textile associations. Without any pride of authorship—for each of these methods of approach has been advocated by far-seeing members of the industry for many years—we rejoice in the fact that the head of one of the important groups comes out so decidedly for these types of activity.

A man wrote us recently that his idea of an intelligent man was one who agreed with him. So we have an added reason for respecting Mr. Van Horn's mentality.

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Nonsense

THERE is a story going the rounds in Washington these days which, while at the expense of the New Deal, ought to make any New Dealer laugh.

It seems that a man was plugging along over the desert in a little old car when, one day just about high noon, he had a blow-out. Painfully he dragged himself out of the car into the blazing sunshine, got out his tools and went to work. But the rim was stuck fast. He hammered away without results but with an increasingly virile flow of profanity.

While this was going on, another car drew up and a minister got out. The latter looked and listened for a while and then said: "You've tried swearing but it doesn't seem to help any; how about trying prayer?" The man thought a bit, decided he had nothing to lose, got down on his knees and exhorted God to do something in the emergency. Then he arose, started to hammer again, and at the first tap the rim dropped off.

The minister stared at it for a moment or two, then exclaimed: "Well, I'll be damned!"

* * *

Just one more offense. This isn't so funny, but it's useful.

It seems that the National Press Club in Washington includes in its membership a large number of ardent bridge-players, and also quite a crew of kibitzers. To avoid arguments with the latter, the former have developed a standard come-back. If a player finesses and loses—or if he fails to finesse and loses, his invariable alibi is: "Well, there are two schools."

Try that on your piano. You'll be surprised how often it comes into use. It is practically unanswerable. All Washington is saying it.

Textile Council

Favored as alternative to American textile institute

THERE is definite recognition, in the textile industry, of the need for a national council, composed of representatives of the various existing associations, which could consider those problems common to all branches of the industry. This was manifest in the reactions received by the editor of TEXTILE WORLD to the editorial in last month's issue. On the other hand, majority opinion very definitely opposes the actual merger of the associations at this time.

Approximately 60% of the men heard from indorse the idea of a council. Of these, some favor the formation of what we have described as an American textile institute, but the majority believe either that the time is not ripe for this more ambitious step, or that a council is as far as the industry should go at any time. Thirty per cent of our correspondents are opposed to both the institute and the council, while the remaining 10% are neutral—mostly from Missouri. There is very definitely a stronger feeling for the council idea than there was when we sounded out opinion on this subject about a year ago.

Below are reprinted extracts from a few representative letters on both sides of the fence, offered as a sample of the reaction received.

"I regret that I am still of the same opinion after a year's experience—that a textile institute covering the entire textile trade would not serve the purpose that a smaller association serves in furthering the individual manufacturer's solution of his problems."—**H. M. Ashby,** vice-president, F. C. Huyck & Sons.

"It would seem to the writer that it might be practical for the Code Authorities of each branch of the industry to elect a representative to a central body, this body to select its own chairman. However, even under the most favorable conditions, it would be too much to expect that this body would come to a unanimous agreement. Nevertheless, I do believe your suggestion to be worthy of consideration."—**John H. Brine,** president, Rollins Hosiery Mills, Inc.

"I have come to the conclusion that it would be a very good idea for the textile interests to have a national council which could cooperate with the three large textile groups in things that are vital to the textile trade. I still am not in favor of a super-organization, to be called the American Textile Institute."—**Millard D. Brown,** Continental Mills.

"I think it will be a splendid thing to set up a council of the textile associations, but I do not think that one large textile institute would be able to take care of the interests of all the diversified lines which would make it up."—**Roy A. Cheney,** managing director, Underwear Institute.

"I heartily endorse your suggestion that the formation of a national council of textile manufacturers' association be made the initial step toward the creation of an American Textile Institute. At the start a council having the small delegated membership and limited powers of the old National Council of American Cotton Manufacturers would seem sufficient, but one of the major activities of its membership should be the study and development of plans for a real American Textile Institute."—**C. H. Clark,** secretary, U. S. Institute for Textile Research.

"I think we are coming nearer and nearer to some comprehensive action along the lines suggested. It seems to me that the economic conditions of the future will inevitably exert pressure for the coordination of textile interests."—**H. E. Coffin,** chairman, Southeastern Cottons, Inc.

"My understanding is that your proposal is the consolidation of all textile trade associations into an American Textile Institute. I do not regard such an organization as either practical or desirable. I still believe that the underlying value which you are seeking can be secured by the setting up of some kind of established conferences, consisting of not more than two representatives from each textile industry, meeting with regularity and interchanging views and cooperation on matters of common interest."—**Earl Constantine,** managing director, National Association of Hosiery Mfrs.

"It might be advisable to have a national council made up of representatives of the various institutes and associations so that there might be one body representing the entire textile industry, but again the thought comes to me that with the diverse interests of the industry, it would be very difficult for such a body to exercise any real leadership. Nevertheless, perhaps the idea is an excellent one and if it was proposed to put it in action, we would do our best to cooperate."—**G. C. Good,** president, Globe Knitting Works.

"As to an American Textile Institute, which would perform functions you indidate, I am quite sure that members of my industry would not approve. . . . However, there are, of course, certain trade problems and situations which undoubtedly could be assisted by mutual consideration and exchange of views and I believe members of our industry would be sympathetic with a council of textile interests to be made available for the textile industry, as a whole, when occasion seems to demand a united viewpoint or policy."—**Herbert Gutterson,** president, Institute of Carpet Manufacturers of America.

"On the subject of the formation of an American Textile Institute, I find myself in accord with those who view it as at least unnecessary at the present time. We have a Cotton-Textile Institute, a Rayon Weavers Association, a Silk Association and a Wool Association, all of which cooperate with one another through established coordinating agencies and I do not feel that a super-association would enlist adequate support to make it an effective instrument toward the improvement of general textile conditions."—**Percival S. Howe, Jr.,** president, National Rayon Weavers Association.

"Along with others, I have had to revise my views on many subjects during the past year. I now do believe that a council representing the various branches of the textile industry is capable of performing valuable services. For instance, as a nucleus, Messrs. Sloan, Besse and Van Horn, together with the president of the Finishers' Association and lay members from each group would make a fair start towards a body that would serve as a mouthpiece for the textile industry. This council might develop into something that cannot be visualized at the present time. Certainly, an effort in this direction would seem worth while."—**David Jennings,** J. P. Stevens & Co., Inc.

"I have read your editorial with much interest, and had I read it just before the strike I would have been enthusiastically supporting it, but having sat very close to what was going on throughout that strike, I realized fully, as day by day passed, how impossible such a thing would be because of the clashing interests and the fact that there are so many varying conditions which cannot be coordinated except with time."—**Chas. F. H. Johnson,** Botany Worsted Mills.

"Undoubtedly there is a great need today for centralization of some sort to handle the common needs of the entire textile industry. This need is even greater than it was a year ago when you called my attention to it, and many of the common problems with which the entire industry is confronted should receive more concerted action than under our present system."—**Lionel J. Noah,** president, American Woolen Co.

"I do see the necessity for such an institute, but I still absolutely disagree with you that this will lead to a consolidating of the many trade associations that are now serving the textile field. In other words, I am in favor of your alternate plan: the formation of a national council composed of representatives of the various existing associations."—**Ewald H. Schniewind,** Susquehanna Silk Mills.

It Was Said during the month by these men

"THERE can be no doubt that the spread of employment through shortening hours and the increase of wage rates under the codes has been a potent force in both increasing mass purchasing power and decreasing unemployment . . . . . The formula of shorter hours and increased wages may operate to accelerate recovery in a business revival, while new opportunities are being developed in the production of new goods and services. But unless these measures to provide new and permanent opportunities of employment are speedily made effective, we may soon find that shorter hours, increased wages and increased production costs will not relieve, but, on the contrary, may increase the problem of unemployment, which must be solved." —DONALD RICHBERG, director, NRA.

The Right to Work: "If we wish to exercise the right of not working, that is to strike, this right should be safeguarded; but in so doing we should defend the right not to strike, that is, the right to work without molestation. In the relationships which develop between employer and employee, it is mandatory upon both employers and employees to live up to their part of the agreements determined upon. Each must be just as responsible to the public and must be held to just as strict accountability as the other."—DANIEL C. ROPER, Secretary of Commerce.

Opposes Limitation of Production: "Nowhere is there greater danger of nullifying the efforts to increase employment than in the limitation of production provisions adopted by the code authorities of a number of industries . . . . Instead of a policy of curtailment, which is a confession of defeat that only heightens the present economic depression, progressive manufacturers, small and large, should be encouraged to produce to the utmost, provided, of course, that child labor is prohibited, and that they are restricted in maximum hours of work shifts at the best possible wages."—JULIUS FORSTMANN, president, Forstmann Woolen Co.

Production-Demand Balance Necessary: "From our observation, we know that those industries are the healthiest where capacity is in reasonable balance with current needs. The public gets a fair competitive price and the industry gets a return with enough profit in it to enable it to proceed with confidence, and working capital and credit enough to increase its capacity and production as rapidly as demand will absorb it. The natural course to pursue, then, in time of depression, or in a chronically depressed industry at any time, is to bring, so far as possible, capacity in line with current demand and then let the healthy competitive processes operate to increase both consumption and production." —GEORGE A. SLOAN, president, Cotton Textile Institute.

The Real Test: "I contend that until at least one other economic system has shown by furnishing a higher standard of living to the mass of its people that it is better than ours, we should stick to our own profit system of fair competition."—S. BAYARD COLGATE, President, Colgate-Palmolive-Peet Co.

Business Must Play Its Part: "The election is over. The President has won all of his objectives in the sphere of politics. He can maintain his position only if recovery succeeds, and that is why he is now turning to the sphere of business. To effect recovery, he is reassuring business men as to his policies and is asking for their cooperation. The responsibility of business men in this situation is clear. They should accept the President's invitation at full face value, and should assist the Administration in every way in the development of wise administration policies and in the promotion of private enterprise. They should continue, however, to fight measures advanced by those elements in the Administration who would place reform and economic theories ahead of recovery."—MALCOLM MUIR, president, McGraw-Hill Publishing Co.

Postscript: "Much is being accomplished at the NRA in the way of internal re-organization, even if no decisions have been reached on major policies by the new set-up. It now is possible to get an answer to a letter written NRA."—PAUL WOOTON, Washington correspondent, TEXTILE WORLD.

Business Paper Editors Meet: *Members of the National Conference of Business Paper Editors and of the Associated Business Papers, Inc., at banquet held in connection with their joint meeting in Washington, Nov. 22-23. Among those who addressed the conference were Secretary of Agriculture Henry A. Wallace; Jesse Jones, chairman, R.F.C.; James A. Moffett, administrator, F.H.A.; Claudius T. Murchison, director, Bureau of Foreign and Domestic Commerce; A. D. Whiteside, member N.I.R.B.; and E. A. Goldenweiser, chief statistician-economist, Federal Reserve Board. The editors and publishers met primarily to formulate a new program of editorial leadership and service.*

EPIT launched at annual meeting of Cotton-Textile Institute

"STAND by George Sloan, not Upton Sinclair, and End Poverty in Textiles!"

Ben Gossett speaking—at the annual meeting of the Cotton-Textile Institute in New York, Dec. 5.

Thus was born EPIT, another alphabetical promise—but apparently one with far greater chance of fulfilment than had EPIC, if enthusiasm at the meeting was a criterion.

Further testimony of the same sort was supplied by W. D. Anderson, actually president of the American Cotton Manufacturers Association but introduced as the Bishop of Georgia, who declared he had never seen as fine a spirit as that exhibited by the manufacturers of textiles during the last 12 months, and had never known a time when the industry rallied so strongly to the Cotton-Textile Institute, or when George Sloan occupied as warm a place in the hearts of the industry as he does today.

In fact, although there were discussions of many important and weighty matters—exports, machine-hour limitations, stretch-out, plant expansion, etc.—the meeting was principally noteworthy for the atmosphere of good fellowship which pervaded it. Toward this, George Sloan contributed by calling for brief remarks—or at least a stand-up-and-bow performance—from many men besides those on the formal speaking program. This impromptu cast included, in addition to Mr. Anderson:

Ernest N. Hood, president, National Association of Cotton Manufacturers; Ray Bell, president, Association of Cotton Textile Merchants of New York; Howard E. Coffin, chairman, Southeastern Cottons, Inc.; Col. G. Edward Buxton, retiring northern vice-president of the Institute; Capt. Elliott Springs, of South Carolina; Lee Rodman, of Indiana; E. J. Hesslein, of Hesslein & Co.; Dr. Robert W. Bruere, former chairman of the now defunct Cotton Textile National Industrial Relations Board; A. Henry Thurston, acting deputy administrator in the textile division of NRA; and F. J. Cheatham, of the U. S. Department of Agriculture.

In addition, messages of greeting were read from Clay Williams, chairman of the National Industrial Recovery Board; A. D. Whiteside, member of that board; and L. W. Robert, Jr., Assistant Secretary of the Treasury.

George Sloan Reviews Stirring Year

George Sloan had ample material on which to base his annual address, and he made the most of it. As he pointed out, the period since the last annual meeting has been the first complete year of the code and of the processing tax, and the first experience with an attempted industry-wide strike. During that year the Institute added 4,959,137 spindles to its membership, bringing the total to 25,234,000—the highest since the organization was formed in 1926.

Taking up in order the three major developments mentioned above, Mr. Sloan cited as definite results from the code the relief of pressure toward minimum wages, the equalization of basic competitive conditions through the maximum work-week provisions which also substantially aided the unemployment situation, and finally the better balance between available capacity and demand effected by the limitation of machine operations to two 40-hr. shifts.

He dwelt at some length on the latter provision of the code, pointing out that Federal income tax figures for the years 1926-31 showed a net loss of $75,000,000 for the industry during that period, reflecting the disastrous effects of unbalanced capacity. Preliminary data based on inquiry of the Institute indicate a continued loss of $60,000,000 in 1932. On the other hand, for 1933 and the first six months of 1934, Mr. Sloan believes that the inquiries now being made by the Federal Trade Commission will show some profit to the industry as a whole. Although that profit was primarily a matter of inventory gains, it is felt that there were elements of stabilization in the situation that marked an advance over old conditions.

Referring to the disappointing situation in the last six months, Mr. Sloan cited as one of the contributing factors to this condition the rumors and fears of the abolition of the industry's machine-hour limitations and a return to complete market chaos, which he believes to be groundless.

In connection with this last half-year, Mr. Sloan said: "For situations such as these we obviously need to develop a more flexible technique in balancing available capacity with available demand and preserving an equality between buyer and seller. The Code Authority is giving this matter its careful consideration. If the present unbalance should prove to be of a permanent nature, there may be occasion to consider measures, which we have previously discussed, for some physical reduction of surplus machinery in an orderly way which will not bring disaster on particular communities. In England there have been measures to such end used in the coal industry. They are now under discussion for use along with other measures for balancing capacity with available demand in the Lancashire textile industry."

Taking up the second major factor, the processing tax, Mr. Sloan stated that it placed cotton goods under a serious disadvantage and diverted consumption to other products. Although not unsympathetic with the underlying purpose of the tax, and realizing that farm income had reached a point that demanded remedial measures, he still claims that "to concentrate the weight of the burden upon the cotton manufacturing industry and its customers seems to me the wrong way to correct this situation."

"I confidently believe," he said, "that the manufacturers of this country, including the cotton manufacturers, are willing and anxious to sit down with the farm leaders and Government officials and work out a more equitable and more constructive plan for the solution of their common problems."

Coming to the third major incident of the year, the attempt last September to close down the whole industry by strike, Mr. Sloan remarked that that effort failed "because it was an effort to impose on all the workers of an industry the will of an organization with which only a minority had chosen to affiliate themselves; be-

cause that organization sought to substitute the methods of force, of industrial warfare, for the orderly processes of investigation and consideration; and because it resorted to methods of violence, wholesale mass intimidation and attack on the right to work which communities and workers alike would not tolerate.

"It is not belived that those methods could ever succeed in this industry," he concluded. "It is to be hoped that they will never be repeated and that this is a closed chapter. The industry—employers and employees alike—should turn to the future. Bygones should be bygones. It is only through the industry's meeting and surmounting the difficult business problems with which it is faced that conditions can improve for employers and employees alike."

Borrowing a phrase from Gen. Johnson, Mr. Sloan then turned to a consideration of a few "dead cats" and examined frankly some of the charges that have been made against the cotton textile industry. In each case, he presented factual evidence to the contrary.

In conclusion, he said:

"As the Administration has recognized, profits are an essential feature in the healthy operation of our daily industrial life. Some margin of profit is essential to the restoration of confidence, to the repair of working capital and to the replacements, improvements and progress which are necessary to recovery. All other plans, useful and desirable as they may be, must in the end depend upon our ability to restore this profit 'cog' in our economic mechanism."

Export and Import Problems

The vital foreign trade problems facing the cotton textile industry were admirably outlined by Harry L. Bailey, chairman of the Export and Import Committee of the Cotton Textile Code Authority. Dealing first with exports, Mr. Bailey presented the following significant statistics:

Our cotton cloth exports in 1929 were 564,000,000 sq.yd.; in 1931, 357,000,000 sq.yd.; in 1933, 295,000,000 sq.yd.; and they will be less than 225,000,000 sq.yd. during the current year. Similarly, our exports of cotton yarn and thread have dwindled from 28,000,000 lb. in 1929, to 15,000,000 lb. in 1931; to 12,000,000 lb. in 1933; and to something less than 8,000,000 lb. during 1934. While in dollar-value our cotton-textile exports this year are running almost as high as during 1933, this business is nevertheless giving much less employment to American workers and is at the lowest point reached during the present century, except perhaps in 1908.

As one of the contributing factors in this serious situation, the speaker referred to the now well-known menace of Japanese competition. Whereas in 1929 Japan's export yardage of cotton textiles was practically half that of Great Britain, she passed the latter nation in 1933, and during the first eight months of 1934 Japan exported 30% more yardage than Great Britain in that time.

Attempts to meet this situation are largely under the supervision of the Textile Export Association. Export managers have spent much time in individual investigations in Cuba, Colombia, and Haiti, and it is now arranged for other negotiators to visit several other Latin-American countries.

Turning to imports, Mr. Bailey presented the following statistics:

In 1925 our imports of countable cotton cloths from all countries were about 109,000,000 sq.yd. In 1932 these imports had decreased approximately 80% to 29,000,000 sq.yd. But in 1933, when our higher costs under the code became effective, there was a reversal of trend, and these imports increased to 41,000,000 sq.yd., and if the present rate is maintained for the balance of 1934 our total imports for this year will be approximately the same as for 1933.

***"Under our American system there can not be health in industry if the individual concerns are selling at or below cost, with the resultant destruction of credit and confidence and inevitable contraction of employment and wages that that involves"*—George A. Sloan, president, Cotton-Textile Institute.**

In meeting this situation, the Cotton-Textile Institute has had particularly in mind the provisions of section 3(e) of the NIRA. In this connection, successful representations in behalf of the cotton rug manufacturers resulted in the imposition, last June, of additional importation fees and arrangements for the establishment of maximum annual quotas. Similar efforts are now being made in behalf of the cotton damask manufacturers. In addition, the Institute is in the process of preparing a case for the bleached goods group, and other products are having consideration. Furthermore, it is necessary to oppose any attempts to lower our present tariff on textiles through the reciprocal trade agreements which are now being negotiated. Fortunately, Mr. Bailey was able to report that, with the exception of the German situation, there is no indication that our domestic textile manufacturers will be adversely affected.

In warmly endorsing Mr. Bailey's remarks, Mr. Sloan announced that he would propose to the board of directors of the Institute a resolution petitioning the President and the Congress to take promptly "such adequate, proper and effective action as will protect American industry and American labor in the marketing of American cotton textiles at home and abroad."

Directors and Officers Elected

Directors elected at the meeting were as follows:

For three years: N. F. Ayer, Cason J. Callaway, Charles A. Cannon, J. A. Chapman, J. H. Cheatham, John B. Clark, A. M. Dixon, James P. Gossett, R. E. Henry, Ernest N. Hood, Allen F. Johnson, Homer Loring, W. B. MacColl, Leavelle McCampbell, T. M. Marchant, Harvey W. Moore, Henry G. Nichols, W. S. Nicholson, E. M. Phillippi, Paul A. Redmond, Lee Rodman, W. F. Staples, Paul Whitin, J. D. Woodside, George M. Wright. *For one year:* V. L. Faulkner.

At a meeting of the directors held later in the day, the following officers were elected: President, George A. Sloan; vice-presidents, R. E. Henry and Frank I. Neild; treasurer, G. H. Milliken; secretary, Paul B. Halstead. New members of the executive committee include James A. Burke, J. H. Cheatham, John McMahon, T. M. Marchant.

(Additional Institute meeting news on following page)

Plant Expansion

And stretch-out discussed at Cotton-Textile Institute meeting

THE experience of the cotton industry in its attempt to regulate plant expansion, and the problem involved in the proposed regulation of the stretch-out, were two of the important subjects discussed at the annual meeting of the Cotton-Textile Institute. The first was the topic of a paper by B. B. Gossett, chairman of the plant extension sub-committee of the Cotton Textile Code Authority, while the second was discussed by Joseph E. Sirrine, textile engineer of Greenville, S. C.

After emphasizing again that the code does not prohibit the installation of preparatory machinery, nor of productive machinery for replacement purposes or to bring plans into balance, Mr. Gossett analyzed the actual results of these provisions. On Oct. 1, 1933, when they became effective, there were 30,827,726 spindles in place whereas on Oct. 31, 1934, there were 30,882,570, or an increase of 54,844. Since 518,000 new spindles were reported under contract by the industry on Oct. 1, 1933, in addition to the 108,000 spindles considered by the committee for balancing purposes, something like 571,000 spindles were reported to have been scrapped during the period.

Mr. Gossett emphasized the fact that it has always been the policy of the committee to encourage the replacement of old equipment with new and modern machines, and promised that this will continue to be its policy "in the interests alike of mills and machinery builders." He further explained that, in cases where mills wished to expand their production but have not been able to locate suitable second-hand machinery and were therefore anxious to purchase new machinery, the committee has recommended that registered machinery be purchased and scrapped, thus opening the way for the purchase of the desired new machinery without increasing the industry's aggregate volume. The committee views this procedure as helpful, he pointed out, in that it reduces the amount of old equipment in existence, makes employment for the textile machinery industry, and benefits the public by substituting low-cost machinery for old worn-out equipment.

Mr. Gossett's characteristic forcefulness was particularly in evidence when he discussed the claim, made by some, that the provision of the code restricting the hours of machinery operation reduces the amount of equipment the durable goods industries can sell to cotton manufacturers. "Suppose we remove these limitations so that each loom and each spindle, instead of running 80 hours a week, can run 144 hours a week," he said. "Is that going to increase the demand for the purchase of *more* looms and *more* spindles? Just the reverse. Twenty-four hour operation of looms and spindles would result in nearly doubling the present available capacity of the industry. . . . The situation would be precisely as if, with the 80-hour limitation remaining, these spindles and looms had in fact practically doubled in number over night, and then the machinery manufacturers had to go the next morning to the industry in the face of this sudden enormous increase of equipment and try to induce it still further to enlarge the number of spindles and looms. It just doesn't make sense."

"It is very unfortunate for the industry that so much has been said with respect to the so-called stretch-out system, because it has given a false impression to many people who have been led to believe the cotton mill was a sort of a torture chamber where each operative was called on to travel and to work at top speed from morning until night with no let-up and that as a result the operatives are a dejected, exhausted and enslaved sort of people. I venture to say there are no set of workers anywhere in the country who are farther removed from this condition or who are making more progress to better citizenship."
—J. E. Sirrine.

The Truth About Stretch-out

The stretch-out is merely a division of work between the skilled and unskilled worker which provides that each of them shall do the thing he is best qualified to do, said Mr. Sirrine. "It is merely an application of one of the oldest and soundest of all practices and had its origin in the dawn of human life," he added.

Remarking that it seemed strange that the textile industry should have been singled out for attack on this point, since the textile worker is probably employed less continuously and on lighter tasks than the worker in almost any other industry, the speaker concluded that much of the prominence given the subject has been due to the use of the term stretch-out which "has a sinister sound."

"It should be remembered always that the work in a cotton mill, outside of those engaged in transportation of materials," said Mr. Sirrine, "is largely machine supervision and the machine-load assignment must be determined by the way the machine runs rather than by the number of machines themselves. . . . It is also a fact that every investigation has shown that there can be no sound formula which will determine a reasonable task in terms of number of machines. . . . There are so many variables in the problem, such as differences in cotton, humidity, type and condition of the machines, machine adjustment and other things of like character, that the only way a reasonable work-load can be determined is by actual observation in each particular plant and by a study of the production records over a reasonable period of time."

Mr. Sirrine concluded by urging the industry to "resist any attempt to unduly regulate or limit the right of each individual mill to determine its own work assignments based on its own experience."

INTER-RELATION

Of textile fibers main theme at silk and rayon convention

A VISION of an integrated textile industry in which the interests now represented by nominally distinct, but actually over-lapping, fiber branches, would be coordinated for the good of the industry as a whole was projected at the Silk and Rayon Convention held in New York, Dec. 7 and 8, under the auspices of the National Federation of Textiles.

This vision was the outstanding keynote of the convention. Among those who helped to create it were Peter Van Horn, president of the Federation, who advocated immediate steps toward that end; S. A. Salvage, president of the Viscose Co., who predicted that "before long you will have to include all textile fibers in your discussion"; Frank J. Farrell, president of the Silk Association of Great Britain and Ireland, who explained that coordination of all the branches of the industry in his country was symptomatic of future lines of approach; and Dr. Paul H. Nystrom, professor of marketing at Columbia University, who urged the cooperation of all branches of the industry in the development of style and quality.

Second only to this dominant theme was the subject of industrial relations. The intensely human contribution from Channing R. Dooley, manager of industrial relations for Socony Vacuum Oil Co., Inc., and the address by Col. Frank P. Douglass, newly-appointed executive member of the Textile Labor Relations Board, combined to fortify Mr. Van Horn's plea for an active industrial relations department within the Federation.

Personally, Col. Douglass made an excellent impression. In his talk, however, he raised serious doubts when he declared, in effect, that the place of destination of the newly-created Textile Work Assignments Boards is the development of a standard work assignment that will be fair to industry and to labor. Lobby conversation tended toward conjecture as to whether this meant an attempt to establish a standard number of machines per operative, or a standard amount of effort per operative. Since recent expressions on the part of well-qualified engineers and others, plus the apparent intention of the Winant Board, have high-lighted the latter standard as the only fair basis for the interests of both management and employees, the industry is naturally anxious to obtain amplification of Col. Douglass' views on this vital point. Fortunately, his realistic and cooperative attitude furnished the belief, to which he openly subscribed, that he will welcome the help of the industry in the difficult task on which his Board is engaged.

The third high-light of the meeting was the emphasis on technical research. Here again, the keynote was sounded by Mr. Van Horn, but echoed by Mr. Farrell and other speakers.

Describing textile research by the Silk Association of Great Britain Mr. Farrell made the significant statement that, as most manufacturers needed research data on various fibers, the scope of the silk studies had been widened to make them cover all major textiles.

The two-day convention moved with a precision rarely evident at such gatherings; it proceeded briskly through a rapid-fire sequence of meetings from Friday morning until Saturday evening. The Dec. 7 session was devoted to problems outside the scope of the NRA code, while that of Dec. 8 was given over to matters affecting all aspects of the code.

It was essentially a business-minded assembly, this attitude being manifest even at the dinner Friday evening. Arthur D. Whiteside, member of the new National Industrial Recovery Board, was the sole dinner speaker and his talk was in very cautioning vein. Regarding the national outlook, he said the country was facing the most critical period in its history, "not even excepting wartimes"; he urged that business leaders take a more progressive attitude toward the New Deal and said he looked for important changes to be made in the NRA structure. His one forecast regarding the new Congress was that it would not shorten the 40-hour week.

The convention resumed Saturday morning with a breakfast session at the conclusion of which Howard Heyden, vice-chairman of the Silk Textile Code Authority, discussed "How I would rewrite the silk code and enforce it." Disclaiming responsibility for the ambitious title of his talk, Mr. Heyden, however, did put the code under a relentless microscope and this scrutiny led him to the conclusion that, in certain respects, and especially as regards wages, the silk industry is more sinned against than sinning. He severely criticized the wage provisions of the cotton textile code, charging that they gave unfair privileges.

Answering the question of how he would rewrite the silk code, Mr. Heyden enunciated six trade practices which he would prohibit, as follows: inaccuracies, as in ads, billing, etc.; attacking competitors; discrimination; commercial bribery; breach of contract; and coercion.

His talk was followed by a crowded day of group meetings and general sessions at which two thoughts dominated: First, immediate code problems; second, what will happen to the NRA next June? The industry's attitude on the first question was greatly clarified by the discussion and interchange of views. Prentiss L. Coonley, division administrator for the textile division of the NRA, discussed the second point in a luncheon address on the NRA. Asserting that the benefits of this law had far exceeded its harms, he expressed the hope that whatever new NRA legislation was to come would not "throw away the hard experiences of twenty months."

John F. Tinsley, vice-president of Crompton & Knowles Loom works, stated in an address that a machinery replacement program would save the industry 25-50% annually.

The report of the recent silk and rayon survey was distributed to all present. This study was instituted by the old Silk Association through its Planning and Research Department, Dr. Melvin T. Copeland serving as consultant, and with financial support by the Textile Foundation. The volume was edited by W. Homer Turner, research director of National Federation of Textile, Inc., assisted by F. J. G. Duck.

When Daylight Leaves

This mill no longer finds weaving efficiency falling and seconds increasing

By Otto W. Bitzenhofer

◆ *This mill—this German mill which dreaded the coming of the short winter days and the night operation of its weaving department—has made past history of the 10% difference in efficiency between its production under daylight and its production under artificial light. After sunset it no longer finds its seconds increasing 21 to 26%. It has studied the lighting problem and profited. We have seen and heard many arguments in favor of modern lighting, but never have we seen so thorough and interesting an analysis of the effect of lighting on the weaving operation as Mr. Bitzenhofer sets before us in this article. In editing it, particularly in the matter of interpreting German electrical nomenclature in familiar terms, we have been kindly assisted by A. L. Powell, supervising engineer, Incandescent Lamp Department, General Electric Co.*

A VERY important factor in textile-mill lighting is the illumination of the individual loom. In most of the older installations this was accomplished by the use of a lamp in a relatively flat shade hung over the harness of the loom. Working under these conditions causes an acknowledged, measurable reduction in performance of the operator as to quality and quantity of the work.

Defects and other troubles which make stopping of the loom necessary must be recognized as soon as they occur. Then, after the defects are seen, sufficient light is necessary to permit finding the causes immediately and making the necessary corrections in the mechanism. Since one operator must observe several looms, good light shortens the time he has to glance at any given loom, and this effect is cumulative. If looms are to be speeded up and the number of picks per minute increased, light is obviously a very important factor in attaining this end.

The old lighting system had many points against it. The flat shades allowed too much light to escape to the sides, where it was of little use, and the bright light source directly in the field of view created severe glare. Generally speaking, the lamps used were too small, even where the light was controlled properly. The location of the lamp was such as to demand considerable loss of time when it had to be moved back to the warp or hung on the rod in front of the harness. With the light in one position alone, the entire loom was not well lighted. All these factors were of particular importance when working with dark-colored material which absorbed the light and thus gave no reflection, as well as being inherently more difficult to see.

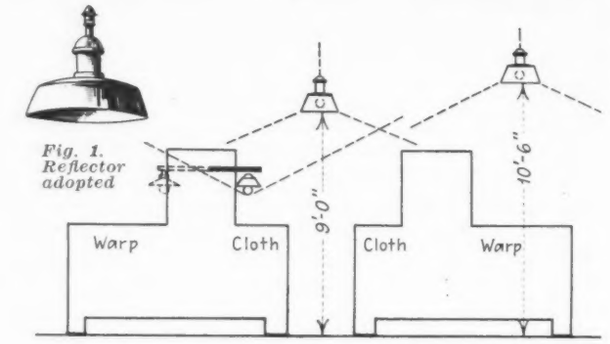


Fig. 1. Reflector adopted

Fig. 2. Side elevation, showing on the left the old system with the movable lamp; and on the right the new system with the two high lamps

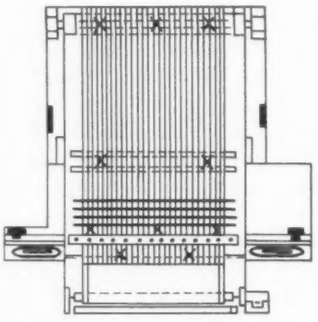


Fig. 4. Plan view of loom with crosses showing location of most common weaving troubles

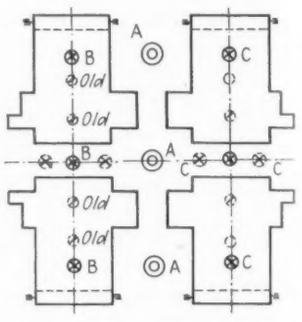


Fig. 3. Plan view, showing the location of lamps in all the systems discussed

The nature of weaving is such as to require two kinds of lighting—a moderate general illumination and good specialized loom or local lighting. In my opinion about 3 foot-candles is required for general lighting; and for the specialized loom lighting, about 20 foot-candles.

For the new lighting system the type of reflector illustrated in Fig. 1 was selected. This corresponds quite well to the RLM standard dome reflector used in the United States. The reflector is enameled white on the inside and black on the outside. It is built of sheet metal and has a diameter of from 10 to 12 in. It tends to direct the light downward on the whole loom area in a wide but properly restricted expanse; that is, it lights the warp, the harnesses, and the shuttles. The spread of light for this new system amounts to about 140 to 170° (70 to 85° cut-off). The old reflectors which had been used, and which were also tested, had a spread of from 200 to 260° (cut-off 10 to 40° above horizontal) and thus exposed the whole lamp to view.

The elevation sketch, Fig. 2, shows the

Cloth	Lighting System	Percentage in each Class			Percentage in First Quality (0 10 20 30 40 50)
		I	II	III	
Cotton	Daylight	40.8	55.5	3.7	
	Old system	28.0	62.5	9.5	
	115 watts	37.5	56.1	6.4	
	225 watts	40.4	54.7	4.9	
	300 watts	43.0	53.2	3.8	
Woolen	Daylight	40.7	55.0	4.3	
	Old system	25.2	66.4	8.4	
	115 watts	32.9	60.8	6.3	
	225 watts	38.4	56.1	5.5	
	300 watts	44.3	50.5	5.2	

Fig. 5. Effect of lighting on amount of goods falling into the three quality classes

Weaving Tests Under Varied Lighting Conditions

Headings For All Tables	Cloth	Loom	Daylight		Old System		Improved Lighting System B					
							115 Watts per Loom		225 Watts per Loom		300 Watts per Loom	
			Time Found	Basis for Comparison	Time Found	Basis for Comparison	Time Found	Basis for Comparison	Time Found	Basis for Comparison	Time Found	Basis for Comparison
EFFICIENCY PERCENTAGE												
TABLE I	Rayon	1	91.1	100	81.4	89.3	85.2	93.5	88.4	97.0	90.2	99.1
	Woolen	2	90.6	100	80.8	89.2	84.4	93.0	87.4	96.4	90.9	100.3
	Rayon	3	89.1	100	81.2	91.1	84.1	94.4	88.7	99.5	92.2	103.4
	Cotton	4	89.8	100	79.7	88.8	83.8	93.3	87.8	97.8	89.0	99.1
	Average		90.2	100	80.8	89.5	84.3	93.5	88.2	97.7	90.6	100.4
CHANGING QUILLS OR FILLING-BOBBINS												
			Minutes	Per Cent	Minutes	Per Cent	Minutes	Per Cent	Minutes	Per Cent	Minutes	Per Cent
TABLE II	Rayon	1	0.19	100	0.20	105	0.19	100	0.19	100	0.20	105
	Woolen	2	0.20	100	0.21	105	0.20	100	0.19	95	0.20	100
	Rayon	3	0.18	100	0.20	111	0.19	105.5	0.19	105.5	0.20	111
	Cotton	4	0.19	100	0.22	115.5	0.20	105	0.19	100	0.20	105
	Average		0.19	100	0.21	109	0.20	102.5	0.19	100.1	0.20	105.2
REPAIRING WARP BREAKS												
			Minutes	Per Cent	Minutes	Per Cent	Minutes	Per Cent	Minutes	Per Cent	Minutes	Per Cent
TABLE III	Rayon	1	0.80	100	1.10	137.5	1.05	131	0.90	112.5	0.78	97.5
	Woolen	2	0.72	100	0.90	125	0.82	114	0.80	111	0.75	104
	Rayon	3	0.76	100	1.04	137	0.90	118	0.86	113	0.80	105
	Cotton	4	0.85	100	1.08	127	0.86	113	0.88	103	0.90	106
	Average		0.78	100	1.03	131.5	0.93	119	0.86	110	0.80	103.1
NUMBER OF WARP BREAKS PER 10,000 PICKS												
TABLE IV	Rayon	1	1.00		1.70		1.42		1.20		1.00	
	Woolen	2	1.30		2.20		2.01		1.68		1.22	
	Rayon	3	0.90		1.40		1.18		1.10		0.88	
	Cotton	4	1.02		1.63		1.42		1.38		1.06	
REPAIRING FILLING BREAKS												
			Minutes	Per Cent	Minutes	Per Cent	Minutes	Per Cent	Minutes	Per Cent	Minutes	Per Cent
TABLE V	Rayon	1	0.87	100	1.10	126.5	0.96	110	0.94	108	0.90	103
	Woolen	2	0.76	100	0.88	116	0.82	108	0.80	105	0.78	102.5
	Rayon	3	0.78	100	0.94	120.5	0.83	106.5	0.78	100	0.75	96
	Cotton	4	0.96	100	1.06	110	1.03	107	0.99	103	0.95	99
	Average		0.84	100	0.99	118	0.91	108	0.88	104	0.85	100.1
NUMBER OF FILLING BREAKS PER 10,000 PICKS												
TABLE VI	Rayon	1	0.36		0.45		0.50		0.39		0.48	
	Woolen	2	0.30		0.59		0.48		0.36		0.28	
	Rayon	3	0.28		0.36		0.34		0.36		0.30	
	Cotton	4	0.19		0.39		0.31		0.29		0.22	
TOTAL MINUTES LOST PER 10,000 PICKS (including time lost due to other causes, such as mechanical troubles)												
			Minutes	Per Cent	Minutes	Per Cent	Minutes	Per Cent	Minutes	Per Cent	Minutes	Per Cent
TABLE VII	Rayon	1	4.8	100	8.6	179	6.7	140	5.8	121	5.0	104
	Woolen	2	5.2	100	9.0	173	8.1	155	6.4	123	5.6	108
	Rayon	3	5.4	100	9.7	180	7.2	133	5.7	105	6.1	113
	Cotton	4	6.4	100	11.6	181	7.9	123	7.8	106	6.0	94
	Average		5.45	100	9.7	178	7.5	138	6.2	114	5.7	105
GROSS MINUTES REQUIRED TO WEAVE 10,000 PICKS												
TABLE VIII	Rayon	1	82.8		92.8		88.0		84.6		82.6	
	Woolen	2	76.4		93.9		87.5		86.3		76.5	
	Rayon	3	84.8		93.1		89.0		84.2		83.5	
	Cotton	4	88.9		100.2		94.7		88.9		86.8	
PICKS WOVEN PER HOUR (Looms 1, 2, and 3 operated at 142 picks per minute; loom 4, at 120)												
TABLE IX	Rayon	1	7,760		6,930		Gain in picks of new system over old				7,690 760	
	Woolen	2	7,720		6,890		Gain in picks of new system over old				7,740 850	
	Rayon	3	7,600		6,920		Gain in picks of new system over old				7,860 940	
	Cotton	4	6,460		5,740		Gain in picks of new system over old				6,520 780	

location of lighting units for both the old and new systems. With the old system the adjustable drop lamp had to satisfy entirely the requirements of illumination at the weaving point. With the new system dome-type reflectors were used in fixed positions as indicated. The plan sketch, Fig. 3, shows three possible arrangements of outlets, *A*, *B*, and *C*. With arrangement *A* there are three lamps to four looms, and 200 watts are recommended for the rear alley with 500 watts for the center unit, giving 225 watts per loom. These lamps must be raised at least 25 in. higher than shown in the elevation drawing. With scheme *B* there are three lamps per two looms, 100 watts for the back alley or warp, for example, with 300 watts over the front of the machine, thus using 250 watts per loom. For scheme *C* there are two lamps per loom, of lower wattage.

Although the latter arrangement is the best, we adopted arrangement *B* as being practically as good and more economical of installation; and we conducted weaving tests with the following levels of illumination: 150 watts for harness and shuttle and 40 watts for warp, or 115 watts per loom; 300 watts for harness and shuttle and 75 watts

for warp, or 225 watts per loom; and 400 watts for harness and shuttle and 100 watts for warp, or 300 watts per loom. We conducted tests also under the old system of lighting with the movable lamp and also under daylight.

We used the daylight tests as 100%, or the standard to which the other tests were compared. Therefore in the accompanying nine tables, which show the pertinent results obtained from the five tests, there are two columns under each test, one showing the positive results and the other showing how those positive results compared with the results obtained under daylight.

Thus it may be seen in Table I, for example, that the average efficiency of the four looms was 90.2% under daylight and 80.8% under the old lighting system and that the latter was 89.5% of the former—a loss of 10.5%. The efficiency under the 300 watts was 90.6%, or 100.4% of daylight efficiency—a gain of 0.4%.

The most important comparisons, however, are not between daylight and 300 watts, as these were very properly about the same, but between the old artificial-lighting system and the new system operating at 300 watts per loom. Thus we have in Table III, for example, an average of 1.03 min. required to repair a warp break as against 0.08 min. under the improved system; and in Table VII we have under the old system an average of 9.7 min. lost per 10,000 picks (not including the time required to replenish the filling) as against 5.7 min. on the new system. Table IX shows a gain in picks woven per hour of 760 for loom 1, 850 for loom 2, 940 for loom 3, and 780 for loom 4. All improvements in weaving were found to be proportional for all weavers, looms, types of material, and colors, taking into consideration quality and quantity produced.

The crosses in Fig. 4 show where most weaving troubles are encountered. It may be seen that they are spread widely about the loom, indicating the necessity for general, rather than local, lighting.

Experience had shown under the old system that, as soon as artificial light was needed, weaving defects increased per piece and the value and sales price of the cloth decreased from 10 to 20%. With insufficient light, shires, tight stripes across the fabric, oil spots and other defects occurred more often. Starting marks amounted to three to five per piece when woven under daylight and from five to ten per piece under old-style artificial lighting.

The cloth was sold under the following quality classes: Class I, with hardly any visible defects, 100% value; Class II, with few minor visible defects and no bad defects, 90% value; and Class III, with bad visible defects or many minor defects, 80% value. Fig. 5 shows how lighting affected the amount of dark-colored goods falling into these three classes. Under the old system, for example, cotton seconds and thirds increased 21% after dark and wool seconds and thirds increased 26%. With the 300-watt lighting the amount of cotton goods falling into Class I increased 53.5% over the amount so classed woven under the old lighting, and the amount of wool goods similarly increased 76%.

Add these items to the 8 to 11% production gains and value of the superior lighting needs no further discussion.

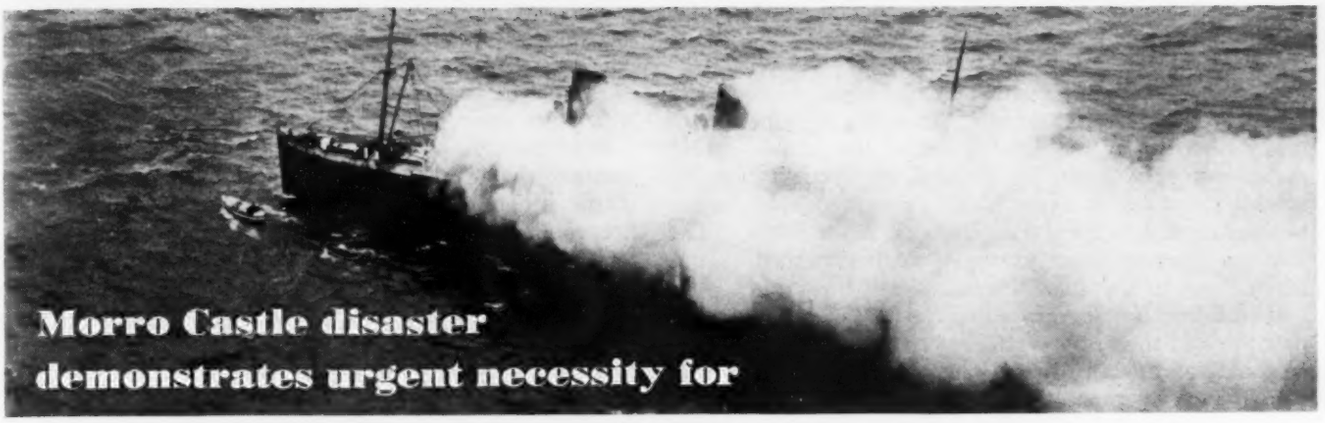
Work Assignment Boards Appointed

THE NEWLY APPOINTED TEXTILE WORK ASSIGNMENTS BOARDS as announced by Secretary of Labor Frances Perkins on Nov. 30. Seated, left to right: Earle R. Stall, employers' representative for cotton; Ruth Reticker, employees' representative for wool; William A. Mitchell, impartial chairman; John Nickerson, employers' representative for silk. Standing, left to right: E. L. Oliver, employees' representative for silk; Godfrey C. Brown, employees' representative for cotton; and Harold J. Walter, employers' representative for wool.

Mr. Mitchell, the chairman, is well known in the textile industry, having at one time been agent of the Massachusetts Mills, Lowell, Mass, and later treasurer and general manager of the Houston (Tex.) Textile Mills. He has lately been senior technical advisor and senior marketing expert in the Cotton Processing & Marketing Section of the AAA. He has been active as a mediator in labor disputes. At one time, Mr. Mitchell made a tour of investigation in China for a DuPont organization.

Mr. Stall, of Greenville, S. C., has been associated with Woodward, Baldwin & Co. for the last four years, and for 16 years prior to that was with J. E. Sirrine & Co., Greenville. Mr. Nickerson, of Manchester, Conn., has worked for 24 years as industrial engineer on work assignments in textiles: four years with Glenlyon Dye Works and 20 years with Cheney Bros. Mr. Walter, of Uxbridge, Mass., is treasurer and general manager of the Uxbridge Worsted Co.

Miss Reticker, of Washington, D. C., has worked in labor relations for two clothing firms: Joseph & Feiss Co. and B. Kuppenheimer & Co. Since April she has been code advisor with the NRA. Mr. Brown, of East Orange, N. J., is a consulting industrial engineer. He has worked with the A.F. of L. Mr. Oliver, of Cincinnati, O., worked with the International Ladies Garment Workers Union in developing labor production standards. He has been organizer for Amalgamated Clothing Workers of America and director of research for the Brotherhood of Railway Clerks.



Fireproofed Textiles

By William F. Brosnan
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PERIODICALLY we are awakened to the grave losses of life and property resulting from the use of inflammable textiles in public places. The gruesome fate of the "Morro Castle" is the most recent catastrophe to revive interest in textile fireproofing methods. When one understands the ease of rendering textiles fire-resistant and flameproof and the degree of safety which obtains therefrom, it is impossible to countenance the lack of foresight indicated by the use of untreated materials.

Wool, silk, and cellulose acetate are of themselves comparatively flameproof. These fibers fuse and melt when burned, but are not regarded as flammable. Therefore the further use of these fibers in fabrics to be used as hangings, drapes, etc., is advisable as a simple method of reducing the fire hazard. Since, however, cotton and rayon are used in enormous quantities and are so inflammable as to present an ever-dangerous fire hazard, we must make use of treatments for protection.

In considering the problem of textile flameproofing, we must first study the chemical nature of cellulose and combustion. Cellulose in the form of cotton and rayon (exclusive of cellulose acetate) contains about 49.4% oxygen, 44.4% carbon, and 6.2% hydrogen. Combustion is rapid oxidation, and its result is carbonization. When cotton is burned, hydrogen and oxygen are released in the form of steam, and only carbon remains. Under very intense heat the carbon forms CO_2 gas, and a mineral ash is the only residue. If there is sufficient oxygen present (i.e., air), the cotton flames freely; on the other hand, if there is an insufficient supply of oxygen, the cotton is consumed without flames. If the heat is not intense, the cotton is merely scorched or tendered by the partial carbonization which takes place. It is evident, therefore, that any material which will volatilize on heating, giving off inert or non-combustible gases, will dilute the oxygen concentration in and about the fabric and will prevent it from taking fire. It is also evident that any materials which fuse when heated and form a vitreous coating about the fibers will isolate them from the air, and the fabric will not take fire.

All flameproofing treatments are based on the two above-noted properties of various chemicals. In the search for the ideal flameproofing material, many chemicals have been investigated. Compounds which have proved suitable include most ammonium salts and many salts of aluminum, boron, zinc, tin, calcium, magnesium, tungsten, and phosphorus. Naturally some chemicals are more efficient than others, and the following table indicates approximately the minimum percentage by weight of various compounds to flameproof cotton:

Ammonium sulphate	4-5%	Epsom Salts	15%
Ammonium chloride	5-6%	Zinc borate	20%
Magnesium chloride	6%	Zinc phosphate	20%
Ammonium phosphate	6%	Aluminum borate	25%
Aluminum hydrate	6%	Sodium phosphate	30%
Calcium chloride	7%	Calcium phosphate	30%
Zinc sulphate	7%	Magnesium phosphate	30%
Borax	9%	Silicic acid	30%
Boric acid	11%	Sodium chloride	35%
Ammonium tungstate	15%	Sodium silicate	50%

An interesting observation of the author is that the presence of compounds of iron, chromium, lead, and copper actually accelerate the rate of burning. Most dyestuffs and organic chemicals have no effect.

Fireproofing treatments with water-soluble salts are conveniently carried out with regular dyehouse equipment. The ordinary pad is the most efficient machine for impregnation. Practically any formula may be derived from the available reagents, and in all cases, if a sufficient quantity of the compound is deposited into the fabric, the latter will be flameproof. The author prefers to use a combination of the highly efficient ammonium salts with a small quantity of borax and boric acid for regular work. The following formula for a 100-gal. batch will prove very satisfactory: 100 lb. ammonium phosphate, 40 lb. ammonium sulphate, 30 lb. ammonium chloride, 26 lb. boric acid, and 16 lb. borax.

The advantages of this formula are its high efficiency and low cost. The ammonium salts are sources of inert gases, and boron compounds are sources of fused vitreous coatings. The borax also helps to prevent tendering on storing, etc., by neutralizing any free acid in the ammonium salts.

Another excellent mixture which is particularly adaptable to rayon and sheer fabrics is composed of 7 parts

borax and 3 parts boric acid. About 7% of this mixture on the weight of the rayon will be found to be sufficient.

These simple impregnations with water-soluble salts are, of course, not permanent, since the ingredients are easily removed by the wetting-out of the fabric. More permanent results can be obtained by precipitating insoluble chemicals into the fibers through double-decomposition methods employing two or more baths. The Perkins process is an example of this method. It is carried out in the following manner:

The fabric is impregnated with 45° Tw. sodium stannate; dried; then impregnated with 15° Tw. ammonium sulphate; and again dried. The excess may or may not be removed by rinsing. The tin hydrate which is precipitated combines intimately with the fiber and is not readily removed by subsequent wetting with water. In like manner, insoluble aluminum and zinc salts can be produced in the fibers by precipitation after impregnation with suitable soluble salts of these metals. For permanence of fire-resistance, coupled with lack of objectionable incandescent glowing, the writer prefers to use sodium stannate as above, but precipitated with zinc phosphate. The zinc and tin combination with the fibers is quite permanent, and the phosphate prevents progressive glowing of the fabric after the source of the heat has been removed or extinguished. This glowing, which is a progressive flameless combustion, is a characteristic of treatments employing heavy metal salts which are poor heat conductors.

Even though we refer to the above treatments as permanent, the term is really a misnomer, as in no case is the proofing actually everlasting. Undoubtedly the fireproofing materials, although insoluble, are gradually removed mechanically when the fabrics are laundered or given hard usage. Exposure to weather invariably results in a diminution of fire resistance and, because of this fact, it is impossible permanently to fireproof tents, awnings, and canopies which are made of cotton duck and twill. Much thought has been given to this problem and, as a result, many compounds have been investigated in a futile attempt to attain absolute permanence of the fireproofing. Such non-inflammable materials as cellulose acetate, various synthetic resins, etc., have been used as waterproof coatings on flameproofed duck, but none of them has proved entirely satisfactory in a practical way. The perfection of an economical and really permanent fireproofing treatment for cotton duck is a major problem for proofers today, and a small fortune awaits the inventor of such a treatment.

Packing Slip

By Milton M. Abrams

Is aid to efficient full-fashioned operation

WHEN an order is received at a full-fashioned hosiery mill, the order department should immediately make out a packing slip. This should be done at once, so that there will be no unnecessary delay after the order has been checked for credit, acknowledged, and transcribed. This packing slip should contain all the necessary details of packing required properly to fill the customer's order. Fig. 1 shows a packing slip which has just been made out by the order department.

From the order department, the slip goes to the clerk in charge of packing. She checks all the packing on hand for that brand and inserts her inventory figures on the line designated "Inventory." The packing slip is then returned to the order department, where the calculations are completed by subtracting the requirements from the inventory of each item. If the packing on hand is insufficient to cover the requirements for the order, additional packing is immediately ordered in sufficient quantities to cover the shortages. Fig. 2 shows the same packing slip completely calculated and with the requisition number given for the additional packing ordered.

Extreme care should be taken if a customer's order calling for the same packing is already in process in the plant. Direct calculations can be made from the previous packing slip taken on that packing. However, in the writer's opinion it is better to take a fresh inventory and then to include in the "Requirements" the packing figures also necessary to cover the uncompleted portions of the old order. This is advocated because of the fact that it is impossible to count transfers on a roll after the seal has been broken and same transfer used. Likewise, it is difficult to count a large quantity of loose rider tickets, stickers, etc. A rough estimate is generally made (using reasonably good judgment based on experience), since it would take too much time to count each sticker, transfer, etc. One can see, therefore, the advisability for a recount on the packing when a new order is received.

CUSTOMER	Smith & Smith
ORDER #	1033
DATE	3/12/34
PACKING	Beauty Hose
1-DOZ. BOXES REQUIRED	555
1-DOZ. BOXES INVENTORY	
1-DOZ. BOXES NEEDED	
½-DOZ. BOXES REQUIRED	1777
½-DOZ. BOXES INVENTORY	
½-DOZ. BOXES NEEDED	
¼-DOZ. BOXES REQUIRED	1600
¼-DOZ. BOXES INVENTORY	
¼-DOZ. BOXES NEEDED	
BANDS REQUIRED	4480
BANDS INVENTORY	
BANDS NEEDED	
TRANSFERS REQUIRED 8½	1733
TRANSFERS INVENTORY 8½	
TRANSFERS NEEDED 8½	
TRANSFERS REQUIRED 9	3466
TRANSFERS INVENTORY 9	
TRANSFERS NEEDED 9	
TRANSFERS REQUIRED 9½	8466
TRANSFERS INVENTORY 9½	
TRANSFERS NEEDED 9½	
TRANSFERS REQUIRED 10	6066
TRANSFERS INVENTORY 10	
TRANSFERS NEEDED 10	
TRANSFERS REQUIRED 10½	2400
TRANSFERS INVENTORY 10½	
TRANSFERS NEEDED 10½	
PACKING ORDERED ON REQUISITION #	

Fig. 1. Packing slip as it is given to clerk in charge of packing

CUSTOMER	Smith & Smith
ORDER #	1033
DATE	3/12/34
PACKING	Beauty Hose
1-DOZ. BOXES REQUIRED	555
1-DOZ. BOXES INVENTORY	876
1-DOZ. BOXES NEEDED	—
½-DOZ. BOXES REQUIRED	1777
½-DOZ. BOXES INVENTORY	946
½-DOZ. BOXES NEEDED	831
¼-DOZ. BOXES REQUIRED	1600
¼-DOZ. BOXES INVENTORY	—
¼-DOZ. BOXES NEEDED	1600
BANDS REQUIRED	4480
BANDS INVENTORY	2500
BANDS NEEDED	1980
TRANSFERS REQUIRED 8½	1733
TRANSFERS INVENTORY 8½	3000
TRANSFERS NEEDED 8½	—
TRANSFERS REQUIRED 9	3466
TRANSFERS INVENTORY 9	3000
TRANSFERS NEEDED 9	466
TRANSFERS REQUIRED 9½	8466
TRANSFERS INVENTORY 9½	1000
TRANSFERS NEEDED 9½	7466
TRANSFERS REQUIRED 10	6066
TRANSFERS INVENTORY 10	10,000
TRANSFERS NEEDED 10	—
TRANSFERS REQUIRED 10½	2400
TRANSFERS INVENTORY 10½	500
TRANSFERS NEEDED 10½	1900
PACKING ORDERED ON REQUISITION #	A236

Fig. 2. Packing slip after all calculations have been made

Carding to Weaving

Discussed by S.T.A. at Danville

AN ADDRESS, "Responsibility of Managers in the Future," was delivered by Robert R. West, president, Riverside and Dan River Cotton Mills, Inc., Danville,Va., at the fall meeting of the Northern North Carolina-Virginia Section, Southern Textile Association, held Dec. 1 at the Country Club Inn, Danville, Va. Problems of carding, spinning, weaving and shop were discussed.

Chairman S. T. Anderson, assistant superintendent, Carolina Cotton and Woolen Mills, Draper, N. C., presided, assisted by Secretary J. O. Thomas, Carolina Cotton and Woolen Mills, Spray, N. C. The discussion on carding and spinning was by L. D. Andrews, Martinsville (Va.) Cotton Mill Co., and the discussion on weaving and shop was led by D. F. Short, overseer weaving, Consolidated Textile Corp., Lynchburg, Va.

A committee, headed by Culver Batson, manager and superintendent, Consolidated Textile Corp., Lynchburg, Va., nominated new officers, and the following were elected: James A. Bangle, superintendent, Proximity Mills, Greensboro, N. C., chairman; L. J. Rushworth, Riverside and Dan River Cotton Mills, Inc., vice-chairman; J. O. Thomas, secretary and treasurer. W. J. Jennings, overseer spinning, Minneola Mfg. Co., Gibsonsville, N. C. and H. L. Dillard, Newton, N. C. were elected to the executive committee.

Mr. West said, in part:

"Our first specific responsibility is to keep a level head and remember that it is not spectacular maneuvers which will promote peace and harmony in our great industry. It is continued improvement in routine day-by-day operations and relations which we must continually seek.

"The second thing we have got to remember is that centralized boards cannot replace cordial and equitable relations with our own employees. This is no time for the management 'to get its back up over labor relations.' Let's put them back to work! Remember that our industry is too big and great to let petty personal grievances influence us to take advantage of misled workers."

Mr. Andrews opened the carding discussion by inquiring if anyone had noticed any peculiarities in the grade and staple of the cotton now being processed. Consensus was that the cotton crop of the last year is a better class and has better spinning qualities than other recent crops.

H. L. Dillard reported that, using a one-process, three-beater picker system, including a vertical opener (apron only) and a Buckley beater between the opener and bale-breaker, and processing strict middling 1-in. cotton, he averages 1½% motes removed by his lappers. Some members reported as high as 2%.

Mr. Andrews, in answer to a question, stated that he thought that black specks or slugs in roving are caused by dirty rolls, boxes, and guides and can be remedied by simply cleaning these parts. Mr. Anderson observed that he had greatly improved such a condition by taking off the flyers and blowing them out with blowpipes. Mr. Dillard suggested that oiling of bolsters might be eliminated, citing cases where mills have run 5 or 6 yr. without oiling and without damaging bolsters.

Regarding the proper doffer speed as related to the least amount of neps, it was agreed that a slow speed, not dropping below a certain minimum (usually approximately 7 r.p,m.), coupled with properly set flats, cylinders, and screens, gives the best results.

Mr. Jennings complained that when the temperature of his spinning room drops below 60°F, he cannot get his cork-rolled machinery started. A number agreed with Mr. Jennings that low temperatures affect cork rolls; an equal number disagreed. No member reported having spun higher than 40s using cork rolls except H. H. Willis, dean, Clemson College (S. C.) textile school, who said he had experimentally spun as high as 120s and knew of several mills regularly spinning 50s and 60s.

The majority of members favored letting spinners do their own cleaning, although a few said they employ special cleaners.

Mr. Anderson reported 1 to 1¼ warper stops per 1,000 yd. on 21,000-yd. beams.

Regarding gage used in setting winder and spooler guides, E. M. Holt, manager, Erwin Cotton Mills Co., No. 3, Cooleemee, N. C., said that on 21s, using a McCall-type guide, he set 30/1,000; Draper guide, 10/1,000; smooth-type, 15/1,000 to 18/1,000.

D. F. Short, overseer of weaving, Consolidated Textile Corp., Lynchburg, Va., opened the weaving and shop discussion by asking if a jacquard harness in damp weather twists worse when varnished all over or when varnished only at the comber board and glass rods. R. L. Ellis, overseer of blanket weaving, Carolina Cotton and Woolen Mills, Draper, N. C., answered that the harness twists 90% more when varnished only at the comber board and glass rods.

R. K. Craven, Minneola Mfg. Co., Gibsonville, N. C., stated that when weaving outings he keeps the relative humidity at 75 to 80%. Mr. Short said that for 80 square and broadcloth he prefers 83%, adding that when the yarn leaves the slasher, it contains 8½ to 9½% moisture and the humidity gives it a total regain of 11¾ to 12%.

It was the consensus that a shuttle, unless broken, should last 1 to 1½ yr., wearing less on broad looms because of fewer entrances into the boxes.

A. L. Beal, White Oak Mill, Greensboro, N. C., asked a remedy for curled sevages and was advised by R. M. Barham, Carolina Cotton and Woolen Mills Co., Leaksville, N. C., to try tape selvages.

R. F. Yates, master mechanic, White Oak Mill, Greensboro, N. C., stated that electric welding is extremely practical and low in cost. He also said that by studding and welding around cast iron, it can be repaired with the electric welder.

Despite one or two dissenting votes, it was generally agreed that steam traps on the discharge line from steam coils are economical, even though condensed steam is not returned to the boiler plant.

Latex Compounding

Improved methods now available simplify problems in pile-fabric manufacture

By John F. Hotchkiss

IN THE comparatively brief length of time since the textile industry first started to make use of latex, numerous applications have been found for this material and other possibilities are constantly being explored. During the same period, the methods for compounding and applying latex have been greatly improved. Originally employed as a backing for rugs and carpets, latex has grown increasingly important in the manufacture of these and other pile fabrics. In this article will be discussed the way in which latex is compounded when it is to be used for backing pile fabrics, and in a subsequent article will be described the method of application.

In considering the use of latex for the purpose just mentioned, one finds that there are a number of requirements to be met. The type of fabric is really the determining feature. For example, the final appearance of the back is of paramount importance in an American-Oriental rug, where the pattern shows through on the back; in the case of automobile carpet, the finished appearance is of little importance. As a rule, the following fabric characteristics will determine the particular compound to be used: (1) appearance required, (2) allowable cost per yard, (3) ease of application, (4) color restrictions, (5) weight per yard to be added, (6) feel of finished fabric, (7) ordinary life of fabric, and (8) present sizing equipment.

Advantages and Disadvantages

A brief discussion of the advantages and the disadvantages of latex as a backing will assist those who are contemplating its use. In the case of rugs, the outstanding advantage of latex is that it imparts a non-slip back, even though the rugs are used on highly polished floors. If the proper latex compound is used, the fabric will retain intact its original characteristics during its life, instead of only the first few months, as is the case when the usual sizing materials are employed.

It is possible, by properly loading the latex compound, to give any range of finished weight to the goods; for example, an ordinary 9x12 rug may weigh 29 lb., but can be made to weigh from 34 to 35 lb. by use of a suitable latex compound. The latex compound will impart a soft pliable feel, without sacrificing body; this also results in the finished product hugging the floor when first laid. Another important advantage of the latex compound is that it securely binds and locks the fabric into a unit; this makes possible the marketing of loosely woven fabrics, which otherwise would be impractical. A further effect of this binding is materially to increase the useful life of the goods.

A disadvantage in the use of latex is the relatively high cost of the rubber compound as compared to ordinary sizes. Application of latex is much more involved than that of ordinary sizing materials; it requires a larger initial investment, greater maintenance cost, and more skill in operating; these difficulties may be minimized by proper standardization and control, as will be pointed out later.

It is virtually impossible to obtain a completely transparent coating of latex, especially when the cost must be kept low; this, combined with the fact that latex discolors when it is exposed to sunlight, is a disadvantage that must be given consideration. A definite sales resistance is created when latex is first substituted for ordinary sizing, but this can be overcome by pointing out the advantages cited above.

From what has been said, we can see that in the majority of cases the advantages of latex more than compensate for its disadvantages.

Selection of Ingredients

The material known as "normal latex" is the white, milky fluid obtained from the rubber tree, without concentration. The percentage of dry rubber in normal latex is about 33%. As offered for commercial use in this country, most latex has been concentrated to a dry rubber content of about 60%, although one brand is available with a concentration of 75%. The specific gravity of latex is about the same as water.

The first step in preparing a suitable compound for applying to textiles is the selection of the latex. For most purposes either the 60% or the 75% concentration can be employed. There is available also a pre-vulcanized latex which is advantageous when the high temperatures necessary to cure the natural latex would injure delicate fabrics. With this pre-vulcanized product, it is necessary only to remove the moisture at ordinary drying temperatures.

The second step in preparing the compound is the selection of the fillers. The purpose of the fillers is twofold. They decrease the cost per pound of the compound and they give added toughness and better wearing qualities. The amount of fillers to be added depends on the result desired and allowable cost. Use of little of no filler will result in a coating of high elasticity and good transparency. As the filler is increased, the elasticity and transparency are reduced. Addition of fillers gives body and stiffness to the fabric after application. If 1 lb. of filler is used to 1 lb. of liquid latex, the cost will be about one-half of that which would result from the use of pure latex. This is about the desirable limit to go in adding fillers.

Fillers commonly used include various grades of clay, whiting, talc, etc. Since most fillers have a specific

gravity of from 2.5 to 3, they add considerable weight to the final coating. The clays are more difficult to wet out, but do not settle out as rapidly as the whitings. On the other hand, whiting does not affect the transparency as much as clay.

By experimenting with sample lots of the various grades of fillers, one can determine which materials are best suited to specific requirements. It will be found that in many cases a combination of clay and whiting in some definite proportion will give best results. If high percentages of whiting are used, precautions must be taken to prevent separation, which would ruin the mix.

The third step in preparing the compound is the selection of the curing and ageing chemicals. The function of these chemicals is to cure or vulcanize the latex and give it long life. Without them, the coating would become tacky in warm weather and hard in cold weather. Vulcanization is usually effected by means of sulphur in conjunction with accelerators (such as mercaptobenzothiazole and zinc dimethyl dithiocarbamate), anti-oxidants (such as di-beta-naphthyl-paraphenylenediamine), and activators (such as zinc oxide).

Use of the accelerators and anti-oxidants requires skill and experience, and technical advice should be obtained from their manufacturers as to the amounts to be used. In general, the amounts depend on the rubber content of the compound, the temperature and time of cure, and the necessary life of the coating.

Chemical Paste

Preparation of the compound on a production basis is carried out in three stages, as will be described below. The compound which we will take as an example is one which has been developed over a period of several years and is now being used at the rate of about 60,000 lb. per month for coating the backs of rugs.

First, the chemical paste is prepared in a pebble mill. It takes about 24 hr. to grind and mix all the ingredients thoroughly, so as to produce a uniform and smooth paste. For a 100-lb. batch the following formula is employed: 70.6 lb. water, 16.2 lb. zinc oxide, 5.4 lb. sulphur, 2.3 lb. zinc dimethyl-dithiocarbamate, 2.7 lb. mercaptobenzothiazole, and 2.7 lb. di-beta-naphthyl-paraphenylenediamine.

Next the filler paste is prepared, in which is incorporated the chemical paste just described. Mixing of the filler paste is accomplished in a 150-gal. tank which is equipped with an electric mixer, having 10-in. blades. The filler paste is made in standard batches of about 1,000 lb. The amount of each constituent in the order in which the mixing takes place is given in the following formula: 440 lb. water, 4 lb. caustic soda, 300 lb. clay, 185 lb. ground whiting, 71 lb. chemical paste, and 6 lb. casein.

The caustic is added to make sure that the filler paste is alkaline in reaction; otherwise, when this was added to the latex, the batch would coagulate in a very short time, if not at once. The clay and whiting are used in the proportion given to achieve both body and transparency.

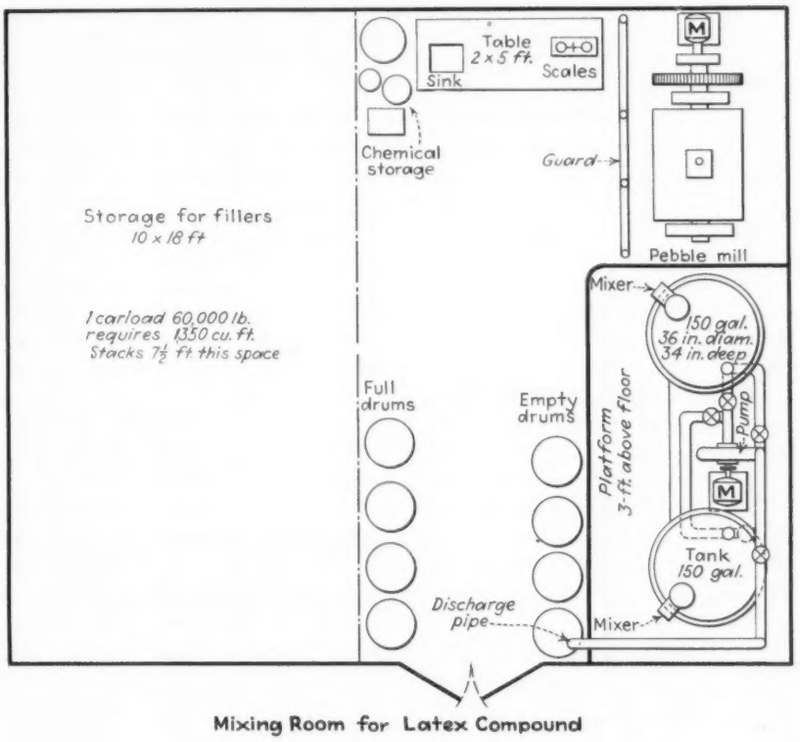
The casein, which is added as a protective agent to prevent coagulation, is prepared by dissolving in water at about 120° F. to which enough caustic is added to make the solution alkaline.

The latex used in this particular compound contains 60% of rubber and is stabilized with ammonia. Before the filler paste and the latex are combined, Karaya gum is added to the latex as an additional protection against coagulation and to increase the viscosity. For each 400-lb. drum of latex, 40 lb. of a 2½% solution of Karaya gum is required. The solution is prepared by mixing 10 lb. of gum in 6 qt. of denatured alcohol. To this is added 1¼ lb. of caustic soda and sufficient water to bring the total weight up to 400 lb.

A small amount of dyestuff is also added to change the dead white appearance of the dried compound. In the 100-lb. batch, about 10 oz. of Diphenyl Catechine R is used to accomplish this.

Final Compound

The final combination of filler, latex, and gum is made just before the compound is to be used. This is done by putting the latex in the supply tank (to which the Karaya gum has been added) and then entering the filler paste.



Mixing Room for Latex Compound

The final compound contains 53.7% of solids and is composed of 400 lb. latex 60%, 60 lb. Karaya gum, and 650 lb. filler paste.

The layout of the mixing room in which the compound is prepared is shown in the accompanying sketch. The storage space will hold a carload of whiting, a carload of clay, and smaller lots of other chemicals. The two 150-gal. mixing tanks are so designed as to permit the contents of either to be pumped into the other, thus making it possible to use one for storage. The piping is also arranged to permit pumping from either tank to the loading platform where the drums are filled on scales, thereby insuring that the correct amount of each ingredient is obtained for a batch.

The scales and work bench are so located as to be most convenient for the compounder.

Wool Twists...

By F. W. Noechel
Botany Worsted Mills, Passaic, N. J.

Methods for determining turns per inch in woolen and worsted yarns

◆ *In this interesting paper, which Mr. Noechel presented before Committee D-13 of the American Society for Testing Materials on Oct. 19, are discussed the needle method and two variations of the feeler method for testing twist in single yarns.*

THERE are several methods used in the industry for testing the twist of single woolen and worsted yarns, but up to the present time only one foolproof method has been developed—the needle method. For this a standard twist counter or torsiometer is used. The distance between clamps for single woolen and worsted yarns is preferably set at 4 in. This length has been found satisfactory for most woolen and worsted yarns of average staple length. If, however, a yarn is spun from extremely short wools or noils, the distance between clamps must be reduced.

In making these tests care should be taken to draw the yarn from the side rather than from the top of a bobbin or cone in order to avoid adding or losing some of the twist. The first 2 yd. of any package of yarn is discarded to insure against loss of twist in handling the yarn. The yarn is first fastened in the right-hand clamp of the torsiometer and drawn to the left just taut enough to prevent sagging, and is then fastened in the left-hand clamp. The clamp can of course be turned by a crank or motor drive—preferably the latter, since it allows the operator to use both hands for testing.

In the beginning, only a little twist should be taken out of the yarn. Then the operator should untwist the yarn with the left hand and insert a fine-pointed needle with the right hand into the center of the yarn exactly at the left clamp. The needle should be drawn through the yarn as the operator continues the untwisting. As the yarn is thus gradually separated, the operator should hold it in position with the left hand until the hairs are all parallel and the needle can be drawn to the right clamp.

Should any nests or kinks prevent the needle from being drawn through the thread, it will be necessary to remove these by running the needle through them from right to left. If this is done in the opposite direction, it will result in bunching the yarn up to such an extent that the findings will not be accurate.

After the first length of 4 in. has been tested and the result recorded, the right-hand clamp should be opened and the untwisted yarn cut off just a little before the left clamp and held tight to prevent untwisting. The left clamp should then be opened and the yarn drawn to the right clamp and inserted. Care must be taken not to leave out more than $\frac{1}{2}$ in. of untwisted yarn between the individual tests, since it is important that the tested length be as continuous as possible.

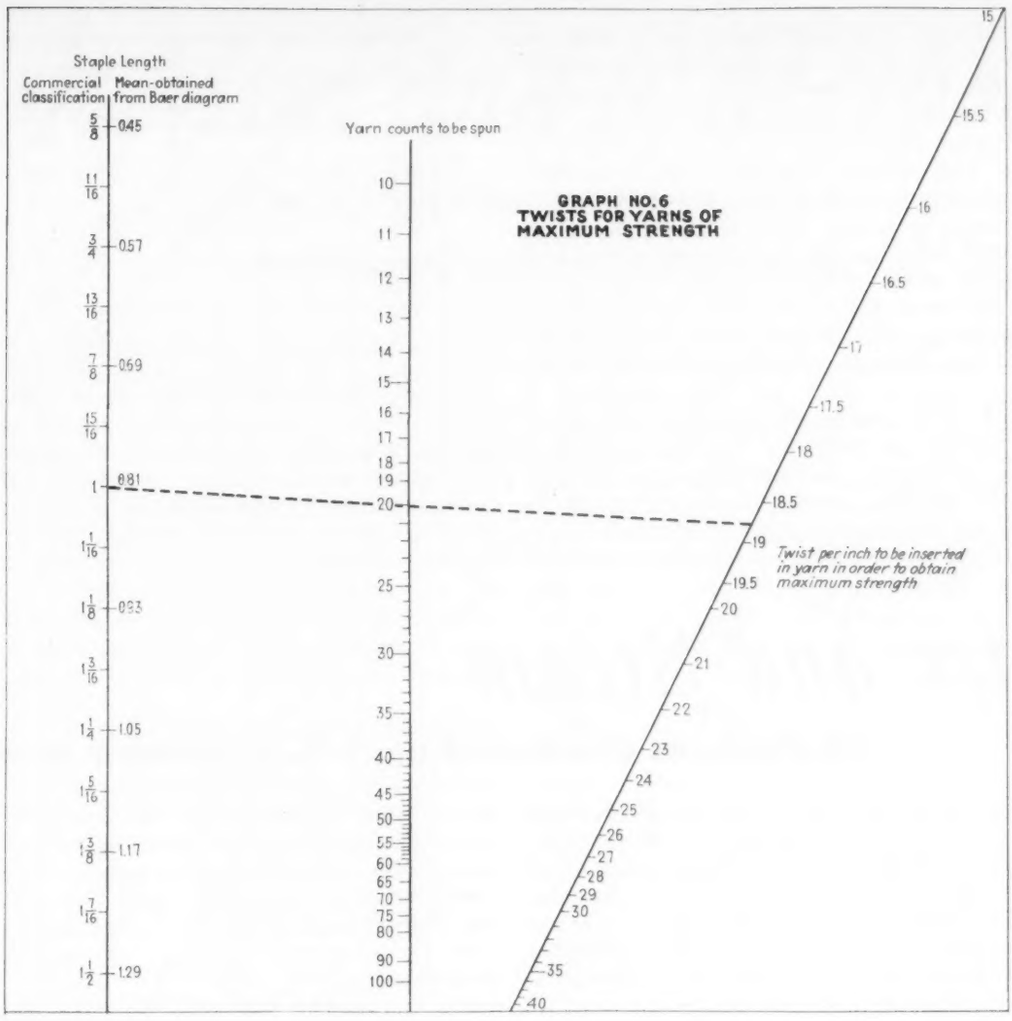
The above procedure is repeated twenty times for each package of yarn selected, and the result should be the average of these tests. The twenty tests are necessary because of the variation of twist in each package of woolen or worsted yarn. This variation makes it essential to test at least one drawing-out on the mule, which is generally from 60 to 65 in. For testing the twist from a case, four bobbins are taken at random, and of each bobbin twenty tests are made. The average of tests will be the twist of the case.

Another method, generally known as the feeler method, does not give quite as good results as the needle method, because there has been a lack of research conducted on it. The procedure is as follows: Take a package of yarn and draw the yarn from the side in order not to lose any twist. Set the distance between clamps at 10 in. and insert the yarn in the right-hand or revolving clamp. Hang a small weight in the center of the yarn and draw the yarn tight until the weight registers a certain desired point. The slack of the yarn depends entirely upon the construction of the thread, considering staple length, twist coefficient, quality of stock, etc. The proper slack can be found only by a number of check tests made before the regular tests.

After the yarn is stretched to the desired point, the weight is removed and the yarn is untwisted. The operator continues to turn the revolving clamp until the yarn receives approximately the same amount of twist in the opposite direction. When the operator sees that this point is nearly reached, the weight is placed back in the same position as at the beginning of the test and the revolving clamp is manipulated back or forth until the original position of the weight is obtained. Read off the amount of revolutions on the counter and divide by twenty. This gives the turns per inch. Repeat this procedure ten times on each of the four packages selected, and the average is the twist of the case.

A variation of the feeler method is conducted by means of a pointer. The procedure is practically the same as just described, except that instead of having the weight in the center of the yarn, it is attached by means of a small hook to a pointer fixed at the left clamp of the torsiometer. Here it is again necessary to make check tests before proceeding with the regular tests for the same reason as just stated, except that instead of the weight being removed, the pointer is merely arrested before untwisting of the yarn is begun. It is of course necessary that the pointer be balanced very well. After the yarn is untwisted and given approximately the same amount of twist in the opposite direction, the pointer is released and the revolving clamp manipulated until the pointer shows zero. The calculation is the same as for the test previously described. It seems that the feeler method could be employed by almost any operator if it were possible to fix a certain tension for each type of yarn. As stated in the beginning, very much research work must be conducted in this direction before these definite tensions can be fixed.

The chief objection to the feeler method is that it is based entirely upon the amount of tension, and therefore it is possible for the operator to obtain almost any number of turns if the tension is incorrect.


Staple Length
Commercial classification
Mean-obtained from Baer diagram
Yarn counts to be spun
GRAPH NO. 6
TWISTS FOR YARNS OF MAXIMUM STRENGTH
Twist per inch to be inserted in yarn in order to obtain maximum strength

Cotton Twists . . .

By Carl D. Brandt
Head of Textile Department
Texas Technological College, Lubbock

Simple chart shows correct turns per inch almost instantly

◆ *The important tests conducted at the Texas Technological College on the relation of twist to strength appear to grow in value as Mr. Brandt continues his experimentation and analysis of results.*

THE findings here given are the final results of work based on the idea embodied in two previous articles appearing respectively in the Feb. 14 and May, 1934, issues of TEXTILE WORLD. The range of staple lengths used has now been extended sufficiently to permit the establishment of the general formulas and curves which accompany this discussion.

Yarns of various sizes and twists, as previously explained, were spun from a series of four one-bale lots of Texas-grown cotton of the following commercial staple lengths: $\frac{13}{16}$, $\frac{15}{16}$, $\frac{31}{32}$, and $1\frac{1}{8}$ in. In each instance one constant for each staple length was found to hold; and when these values were plotted, curve No. 2 in graph No. 5 was obtained. It will be seen that a straight-line relation exists. One point, *C*, appears to be rather far from the straight line; but, as will be explained, this was due to the influence of a special condition.

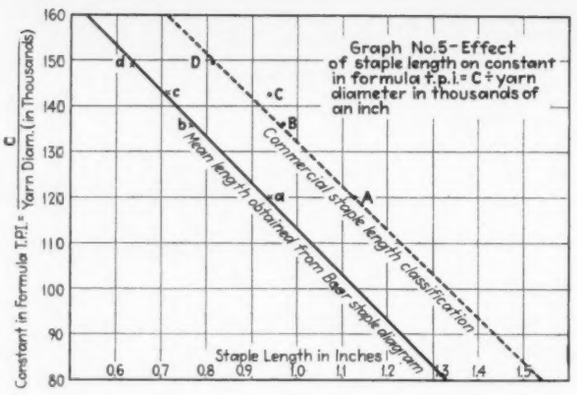
The purpose of curve No. 1 in graph No. 5 was to determine what relation if any existed between the commercial staple classification and the mean fiber length as obtained by using the Baer sorter and staple diagram. It is rather surprising to note that there apparently is a very definite and exact relationship.

All the samples used were classed by three different cotton men; and, with the exception of *C*, there was very close agreement as to grade and staple. Lot *C* was a so-called "snapped" bale of rather poor quality and contained a large amount of short fiber—under $\frac{1}{2}$ in. Apparently the classers were not severe enough in their estimation of this bale when they called it $\frac{15}{16}$ in., as $\frac{7}{8}$ in. would have been more nearly correct. This is shown by the mean staple length as obtained from the Baer diagram. Here point *c* is in its proper place and very close to the straight line No. 1. In judging staple length it is rather difficult to estimate correctly and assign the proper value to the short fiber contained in a sample.

Graph No. 6 offers a summary of the results obtained

and presents the data in a form that is easily used, as no mathematical calculations are required. As an example of its use, a dotted line will be found running straight across the chart. It represents the turns per inch (18.75) which must be inserted in a 20s yarn that is to be spun from 1-in. cotton. Similarly, the twist that must be put into any yarn spun from any staple length (within, of course, its proper limits) can be found by placing a straight edge on the two known points and reading the value at the point where the curve at the right is cut. The mean staple length as obtained from the Baer diagram is also given, as this would be the better value to use where the means of obtaining it are available.

One must take into consideration the fact that cotton fiber is very variable in itself and that therefore hard and fast rules concerning its reactions cannot be laid down. Also, the spinning process is not perfect in its action and it is not uncommon to find as much as 15%± variation in the amount of twist in different parts of a cotton yarn. This work should be accepted as representing average conditions. Since the various lots of cotton used were quite similar in physical character, the results obtained should be accurate within the limits of normal variation.



Water and Steam

equipment discussed by S.T.A. master mechanics

WATER filtration and boiler-room problems were discussed at the fall meeting of Master Mechanics Division, Southern Textile Association, held Nov. 23 at Spartanburg, S. C. Following an open discussion of mill-engineering problems, papers on water filtration and boiler-room management were presented by C. M. McAllister and C. G. Spencer, respectively, both of Union Bleachery, Greenville, S. C. L. W. Misenheimer, chairman, presided.

Mr. McAllister opened his paper by showing samples of boiler scale, and declaring that 1/50 in. hard carbonate scale causes 9.4% loss in heat efficiency; $\frac{1}{32}$ in., 12.6% loss; and $\frac{1}{16}$ in., 16% loss. "These heat losses and many other evils due directly to scale," he declared, "can be eliminated by treating and filtering the water."

Placing two pieces of polished metal in separate beakers of water, he said: "The water in one of these beakers is slightly acidic, and in a moment you will note corrosion begin to form on one piece of metal. This is the same thing which happens to pipes in a cold water line when the water is acid. Corrosion and tubercles stop up the passages, and rust forms on the machines which come in contact with the water. On the other hand, just the opposite occurs in a steam line; that is, the pipe walls are dissolved or picked up, and the iron is deposited in the cloth, where it often causes oxycellulose in bleaching or offshades in dyeing. This acidic condition can be eliminated by secondary soda ash treatment.

"Acidity is only one of many conditions which must be corrected before raw water is suitable for processing work. humidifying systems, and other mill uses. Turbidity and other solid particles must be removed. Algæ, unless eliminated, will pass on into the processing and result in oil stains or resists on cloth. Magnesium, calcium, and aluminum will combine with oils and soaps to form insoluble soaps. Proper treatment with alum, chlorine and soda ash, coupled with proper filtration, will result in water which will not corrode machinery and will not cause damage in processing."

Discussing the subject of boiler-room management, Mr. Spencer first showed a high-temperature thermometer, a wax candle and an Orsat flue-gas analyzer. "With these three instruments," he stated, "it is possible to operate a boiler room with a high degree of efficiency—the thermometer to test for heat losses, the candle to look for cracks, and the Orsat apparatus to check CO_2, or combustion."

In connection with flue-gas analyses, he stated: "The higher the percentage of CO_2 in the absence of CO, the higher the initial furnace temperature. And, as a general rule, the higher the furnace temperature, the greater is the efficiency. Extreme temperatures are destructive of brick work, but they are not likely to damage the tubes or sheets of the boiler, provided there are no deposits of scale, mud, or oil, or other materials that will prevent intimate contact between water and metal."

In reply to a question as to how often he cleaned boiler tubes, Mr. Misenheimer replied that the fire tubes are blown-off twice daily, scraped weekly, and cleaned with a vibrator twice yearly. He said that upon being put in charge of improperly operated boilers, he had on one occasion removed 1155 lb. scale per boiler; in another instance, 600 lb. per boiler. Discussing steam plant operation further, he recommended installing a return-pump for condensed steam, revamping heaters, correcting water, and replacing oversized motors with more economical units. He stated that such changes had in one year cut his fuel costs 40.75%.

R. L. Yates, White Oak Mill, Proximity Mfg. Co., Greensboro, N. C., opened the general discussion by asking how lint and corrosion could be kept out of humidifier heads and return lines. He remarked that he has recently changed from a down-type filter to an up-type and seems to get somewhat better results. S. K. Lineberger, Industrial Cotton Mills, Rock Hill, S. C., suggested reversing of the flow of water and straining through a box of steel wool. R. F. Mitchell, Brandon Corp., Greenville, S. C., favored the pumping of return water through open filter into a well and then back into a suction tank.

A Man and a Method

Turn loss into profit for Belding-Heminway-Corticelli Co.

A MAN, a method—and a progressive executive committee which gave its energetic support to both. It was the effective combination of these three that enabled the Belding-Heminway-Corticelli Co., broadsilk manufacturers since 1866, to turn a net loss of $1,016,000 into a profit of $520,000 within the brief span of two years. This successful come-back of one of the oldest houses on the continent, during a period of acute business adversity, stands among the more notable feats of recent years in the textile industry. The major problems involved—strongly-entrenched tradition and conservatism in management and methods—are so common to textile firms that the story has a broad and timely significance.

Belding-Heminway, it will be recalled, made various ineffective efforts during the early years of the depression to get back on a profit-earning basis. As a sequence to several financial crises, control of the company in late spring of 1932 passed into the hands of an executive committee representing the stockholders. This committee selected Paolino Gerli, who is also vice-president and general manager of E. Gerli & Co., silk importers, as its chairman.

Mr. Gerli found the man—in the person of Raymond C. Kramer, at that time associate director of Amos Parrish & Co., and widely experienced in merchandising. Development of the method followed shortly after the election of Mr. Kramer as president of the Belding-Heminway Co. About a month subsequent to Mr. Kramer's election, Belding-Heminway absorbed the Corticelli Silk Co. This was clearly a constructive move, since it served to combine the extensive silk thread business of Corticelli with that of Belding.

The first step of the new administration was to submit the entire organization to a minute analysis. This disclosed a lowering of morale due to the company's continued reverses, and narrowed down to three specific weaknesses: (1) outdated methods; (2) a top-heavy administrative structure and abnormally high operating costs; and (3) inefficient mill equipment.

The plan used to rebuild the business had two main divisions—merchandising and management. The keynote of the merchandising approach was that the company definitely set itself against slow selling and determined to build its lines to permit maximum volume in minimum time. Management problems were tackled with two aims in mind: First, a reduction in general operating costs, exclusive of sales; and, second, complete modernization of mill equipment, much of which had become obsolete.

In his drive to effect these desired results Mr. Kramer worked in close cooperation with Mr. Gerli, chairman of the executive committee, who gave staunch support to the new president through the difficult months. The task indeed was formidable and challenging. When the new administration took office the business was in a gradual process of liquidation; sales had fallen off drastically, and the inventory had shrunk to the point where lines were inadequate and incomplete.

Reorganization, Mr. Gerli explained, was especially difficult from the psychological angle, as tradition and sentiment militated against either cutting personnel to the point of efficiency or scrapping obsolete machinery.

The solution, the executive committee was convinced, lay in a detached approach; which explains their decision to place the management in charge of a man from outside the silk industry, and who therefore would not be hampered by tradition in getting results.

The guiding principle of the new method was to save every dollar possible in operating costs without impairing efficiency, and to put this saving back into the company, either in merchandising or manufacturing.

In line with this policy, a decisive movement to reduce operating costs was started. The successful outcome of this policy is best told in the following table, which, with the exception of the 1934 estimate, is compiled from the firm's financial statements:

GENERAL OPERATING COSTS

1931	(Prior to Reorganization)	$1,300,000
1932	.....	1,040,000
1933	.....	961,000
*1934	.....	860,000 (Estimated)

(*This estimate is based on the report for the first nine months of 1934, which puts operating costs at $650,000, against $760,000 for the same period in 1933)

How was this reduction of nearly one-third in operating costs achieved? Elimination of both major and minor non-essentials is the answer. More particularly, the company abolished unnecessary jobs, through combining and simplifying duties.

The next step was to survey the company's equipment in its mills at New London and Putnam, Conn.; Petaluma, Cal.; and in Florence, Mass. This study showed that much of the machinery had become outdated, so between 1932 and 1934 the administration spent $400,000 on new equipment, mostly at the Putnam mill, which installation enabled the company to increase its production at Putnam 400% in the same space.

With all its economy, the company did not order a single wage cut, it being felt that salvation lay in "stepping-out rather than in drawing-in."

On the merchandising side, sales coverage was intensified, selling personnel was doubled, lines were rebuilt, which resulted in a sales gain of nearly 150% since 1932; and the company continues to increase its turnover. The merchandising keynote has been to operate more as an efficient retail store than as a mill.

The success of Belding-Heminway's financial revival, to repeat, is the success of a man and a method. In person, Raymond Kramer is a man of few words. The only comment he would vouchsafe was that too many companies try to solve their difficulties by patching-up; they don't rebuild. The success of his own rebuilding program has brought warm tributes from Paolino Gerli and others of the executive committee.

Yarn-Friction Tests

of value to rayon producer and knitter

made possible by easily constructed apparatus

By W. B. Sellars
Tubize Chatillon Corp.

KNITTERS are well aware of the fact that fabrics made from different brands of rayon yarn of the same denier vary in appearance and in the tightness of stitch. They have found also that a given yarn lubricated with the same percentage of several types of coning oil will give a different stitch for each type of oil. These variations are due primarily to the surface condition of the yarn. If the surface is rough and free from oil, the friction of the yarn against the guides, metal parts, and needles is high, and the tension applied on the knitting machine must be reduced. *Vice versa,* if the yarn surface is smooth and well oiled, the tension must be increased to obtain the desired stitch.

In making many knitting tests on rayons treated with different coning oils, we found it desirable to be able to predict which yarns would run with tight and which with loose stitches and to assign numerical values to the friction of the yarn. These values would give also an indication of the correct setting of the tension-control device to maintain the same stitch with the various yarns. There is on the market an instrument, called the Tensiometer, which is useful in checking the tension under which yarns are being processed during winding, twisting, etc. Our requirements, however, called for a laboratory apparatus to be used for testing many cones of yarn in a short length of time. Accordingly, a simple piece of apparatus was constructed from easily available parts which enabled us to measure the friction quickly and to assign a numerical value to it. This apparatus has been found of great value in comparing the lubricating value of various oils and in the interpretation of knitting results.

Friction-Testing Apparatus

The laboratory-developed apparatus is shown in the accompanying illustration. It consists of a set of three nearly frictionless thread guides, the tension adjustment from a standard type of spooling or coning machine, a laboratory-made spring balance or dynamometer, suitable pulleys for guiding the thread, and a take-up spool driven by a motor and suitable pulleys. In its original form, the dynamometer consisted of a small laboratory spring balance with the hook replaced by a pulley.

It is essential to take great care in selecting the tension-adjustment device and the dynamometer if one is to obtain reliable results. The stationary and movable sides of the washboard of the tension device must be parallel to one another to give a uniform tension on the thread from the beginning to the end of the board. A 100-gram weight hangs from one end of the movable side; this is the standard load applied to the thread. The spring balance or dynamometer should read from 0 to 250 grams. The dynamometer shown in the illustration was made by inserting a brass rod through a coiled tubular spring, fastening one end of the spring to the housing and the other to the rod, fastening a pointer at the zero point where no load is on the spring, and calibrating with gram weights. The lower end of the rod carries a free-running fiber pulley, only one end of the pulley shaft being fixed to the rod.

The first guide is a porcelain thread guide of such a shape as to bring and hold the thread in a vertical line as it balloons from the cone; the upper guides are wire. There are four free-running pulleys—one to guide the thread into the washboard, and another set of three to guide it out of the washboard, over the dynamometer pulley, and down again to the take-up device. These are fiber pulleys, such as the type found on the Universal copping machine; they must turn with a minimum of friction, and their shafts must be kept well oiled.

The take-up device consists of a spool having the flange on one end fixed to a large wooden pulley and a common shaft fixed to both, the shaft being mounted on wooden trunnions. The large pulley is driven by a $\frac{1}{6}$-hp. motor, and the pulleys are of such diameter that the linear take-up velocity of the thread is approximately 25 meters per minute. It was found that the velocity could vary considerably from this value without affecting the results; consequently building up of yarn on the spool does not affect the results. The guides, pulleys, washboard, and take-up spool must be in the same vertical plane; the course of the thread under the three lower guide pulleys and over the take-up spool should be in the same horizontal plane. After each test, the washboard should be cleaned of oil by using an ether-soaked rag; the guides also should be kept clean.

In operating the apparatus to test any yarn, one first takes a reading with the thread running through the washboard with the 100-gram weight removed and the movable side down so as not to contact the thread. This gives the friction of the thread against the guides and pulleys, as well as inaccuracies in the zero setting of the balance. This reading should not be over 3 grams. This value must then be subtracted from all readings. To obtain the friction of a given yarn, the 100-gram weight is attached, the thread pulled through the washboard by the take-up device, and the dynamometer reading noted, which is the force of friction.

The coefficient of friction is then determined by the following formula: $f = \frac{F - C}{2N} = \frac{F^1}{2N}$, in which

F = dynamometer or spring-balance reading.

C = correction to balance as determined above.

F^1 = dynamometer reading corrected for guide friction, etc.

N = weight or force applied (100 grams was adopted as standard).

f = coefficient of friction.

The term $F - C$ must be divided by 2, as there are two equal component forces pulling the spring of the dynamometer downward. If the thread makes an angle with the vertical in going up, over, and down from the dynamometer pulley, an angular correction must be made to the balance reading.

The maximum variation in friction of a sample in running through the apparatus, denoted by F_v, is a measure of the variation of running or, conversely, of smoothness of stitch of the yarn in the knitting machine. If we denote the highest balance reading when running a representative length of yarn by F_h and the lowest by F_l, then $F_v = (F_h - F_l) \div 2$.

Theoretically, the frictional force should be proportional to the force applied, and the coefficient of friction should be independent of the force applied. For rayon, such was found to be true for the frictional force, as long as this force was about 50 grams. However, the coefficient of friction rapidly approaches a maximum at a low value of applied force (about 60 grams), then drops very slightly to a constant value. The value at 100 grams was chosen as being representative of conditions as found in practice; it is also in the region of practically constant value of friction coefficient.

It should be noted that this apparatus gives the simple kinetic friction of yarn against metal. The static friction, which is the force that must be just overcome to make the thread slide past the metal starting from zero velocity, is not of great importance to the knitter. It should be also kept in mind that this instrument measures friction only. The knitting properties of a yarn are to some extent determined by its rigidity (softness), as well as by its friction.

Results of Tests

Typical values of the coefficient of friction of various yarns are given in Table I.

Further tests were made which indicate that the old idea that the greater the quantity of oil placed on the yarn, the greater the lubrication, is a fallacy. These tests showed, in fact, that too much oil can give less lubrication. Results of such tests made on 150/40 viscose yarn treated with pure mineral oil of 65 sec. Saybolt viscosity at 100° F. are given in Table II.

Evidently for this oil, the maximum lubricating effect was obtained by applying 1.3 to 2.4% oil. However, a limited number of tests indicated that in the case of certain compounded emulsifiable oils, particularly those containing relatively large amounts of water, a greater pliability of the yarn was obtained with oil percentages higher than that giving maximum lubrication. This is due probably to absorption of moisture by the yarn. What actually happens when high percentages of oil are applied, is that the denier of the yarn is increased, thereby giving a greater length of knit goods for the same stitch to a given number of pounds of original yarn.

Other tests disclosed that, as a rule, mineral oils give better lubrication than vegetable oils, and vegetable oils give better lubrication than soaps and softening compounds. Table III shows the coefficients of friction of a 100/26 acetate yarn with various finishes. Although mineral oils give better lubrication, vegetable oils and soaps impart more softness and pliability to the yarn.

Tests were made on samples of the same yarn oiled with the same percentage of the same type of mineral oil of different viscosities. From the results given in Table IV, it will be noted that the yarn lubricated with the oil of higher viscosity has a slightly higher coefficient of friction than that which was treated with the oil of lower viscosity.

The effect of storage on the change in knitting properties of yarn treated with an oil which becomes rancid on ageing is remarkably demonstrated by a determination of the friction coefficient at intervals of time. Table V shows the results obtained on an acetate yarn treated with 2% of olive oil containing no anti-oxidant and with an original acidity of 0.5%. These variations were found to have a very marked effect on the stitch when the yarn was used for knitting.

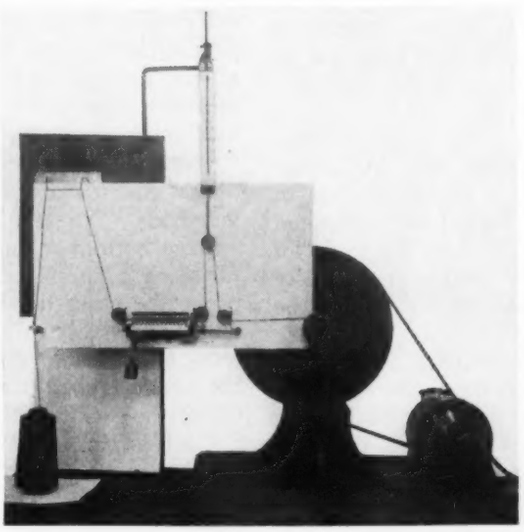
A wide field remains open for carrying out more extended practical tests with an instrument of the type described. The yarn producer and the yarn knitter have the opportunity of testing their production and shipments for uniformity, while the chemical manufacturer has the opportunity of determining the true lubricating value, the effect of storage, and the optimum percentages of oil to be used for their various types of yarn lubricants. Furthermore, there is a field for academic research of a more theoretical nature into the frictional properties of yarns, a subject which has been little investigated.

Table I. Coefficient of friction of various types of yarn.

Viscose process yarn, 150/40, Type A, oiled	0.27
Viscose process yarn, 150/40 Type A, no oil	0.34
Viscose process yarn, 150/40, Type B, oiled	0.38
Acetate process yarn, 150/40, Type A, oiled	0.33
Acetate process yarn, 150/40, Type B, oiled	0.46
Mercerized cotton, 60/2	0.31
Thrown degummed silk, 160 denier	0.40

Table IV. Effect of viscosity of oil on coefficient of friction.

Per cent Oil	Friction Coefficient	Friction variation
0.3	0.380	22 grams
1.3	0.300	4 grams
2.0	0.305	5 grams
2.4	0.305	5 grams
3.5	0.310	5 grams
5.2	0.315	8 grams
7.4	0.320	10 grams



Apparatus for determining coefficient of friction of yarns

Table III. Effect of type of oil on coefficient of friction.

Type of oil	Friction coefficient
Without oil or softening treatment	0.57
4% fresh, low-acidity olive oil	0.26
2% of a 65 sec. viscosity pure mineral oil	0.27
0.8% castor oil	0.44
1% of a mixture of soap and sulphonated castor oil	0.36

Table IV. Effect of viscosity of oil on coefficient of friction.

Saybolt viscosity	Friction coefficient.
65 sec. at 100° F.	0.32
175 sec. at 100° F.	0.40

Table V. Effect of ageing of yarn on coefficient of friction.

Age	Friction coefficient
One day	0.350
One week	0.355
Two weeks	0.360
Three weeks	0.370
Four weeks	0.380
Five weeks	0.385
Six weeks	0.390

Heavy Sweaters . . .

Review of problems encountered in knitting

By Thos. D. Ferguson

Good piecings and freedom from excessive twist are essential in woolen knitting yarns, and all yarn defects should be traced back promptly to the mule. Knitting operatives require alert eyes and ears. Machines must be overhauled regularly. An oil should be selected which will stay in the cylinder slots. Full use should be made of machine attachments.

THE rib-sweater section of the textile industry is not centralized geographically; therefore it is not strange that we find practically every mill has a different set of problems to face. Yet there are definite problems that must be met by every mill. Good knitting depends on at least the following factors: the type of yarn, the quality of the needles, the ability of the operatives, the care of the machines, and the use which is made of the facilities available.

First, let us consider the yarn. Good carding is essential, of course; but the best of card roping can be spoiled by the spinner. The knitter should demand these two things from a spinner: first, no excess twist; and second, good piecings.

The knitted fabric made from excessively twisted yarn is likely to have many defects. The cloth may feel rough or look lumpy, it may not lie straight on the cutting table, or a sharp increase in bad needles may be noted. Every cloth has a natural "set," and excessive twist sets up unwanted stresses and strains.

Good piecings likewise are of the utmost importance to good knitting. Superior stock and even yarn are of no avail if the piecings are not good. As the yarn carriers will not admit tails or slubs, the yarn breaks and the "quarter is off." This means reduced production, more seconds, and an increased needle bill. A knitter cannot rely too much on the cleaners at the winders to improve the yarn. Bad piecings should be eliminated at the source—the mule. If possible, each spinner's lot should be marked and an accurate record kept of faulty piecings. The importance of this matter cannot be stressed too much.

Needle bills constitute a substantial part of the cost of knitting. It is the knitter's business, therefore, to maintain strict supervision over the distribution of needles. Operatives should be instructed in conserving them. In recent years needles have been greatly improved. Their construction is more accurate, the steel more resilient and tough, and the design superior. The complaint that needle butts are breaking off in the machine is not commonly heard today. The knitter should keep abreast of developments in needle technic.

The third factor necessary to good knitting is the type of operative employed. It is the duty of the knitter to be on the watch for better operatives. Knitting is not the mechanical operation in the sense many other jobs are; it calls for a peculiar type of efficiency. The operative must have, among other qualifications, an alert eye and also an alert ear. The ability to hear an unaccustomed "click" is a matter of dollars and cents.

While on the subject of operatives, perhaps a word about oil and oiling would be appropriate. The size of the oil bill depends largely on the judgment of the operatives. High-quality oil carefully used is important to good knitting. While a light oil is recommended for medium-weight latch-needle work (underwear, bathing suits, etc.), work that is several cuts heavier takes a much heavier oil. For heavy rib sweaters the machines have inside cylinders and revolving cams. It is necessary, therefore, that an oil be used which will stay in the cylinder slots and not run through to the pan. Apply a heavy oil only when machine is warm. Good quality oil free from gummy qualities is a necessity.

Although it may not be possible for the knitter to control all of these factors fully, he can at least care for his machines properly. Besides making the routine repairs, it is to his advantage to make periodic overhaulings. This is of course best done during the slack season. For an automatic rack ribber the overhauling should include the following: (1) Removal of the cylinder and careful inspection of cams. If the cams are not badly worn, they may be ground to shape. In case of doubt as to the worth of a cam, it is wise to replace it. (2) Removal of dial, and grinding or replacement of dial cams. (3) Inspection and cleaning of racking mechanism. If the machines have brass racking rings, this is the time to replace broken end pins. (4) Cleaning and adjustment of take-up and connected drives. (5) Filing (if needed) of cylinder and dial needle slots. (6) Inspection of striper mechanism. (7) Careful setting of feeds, latch openers, shoes, etc. If the annual overhauling is carefully done, breakdown repairs will be reduced.

Another element in good knitting is the ability to use all the facilities at hand. Here is an example. A certain mill was making a medium-weight sweater. The machines were two-feed automatic rack ribbers with stripers. The sweater consisted of a plain-rib bottom, a few courses of half-cardigan rack, and a half-cardigan body. These machines were capable of making a selvage bottom—that is, a few courses of rack on the plain rib. These courses tie in the rib bottom and improve the elasticity of the plain rib. Competitors were making sweaters this way; but no, this mill cut the bottoms and then crocheted them. Here is a case where the product could have been improved by making full use of the facilities at hand.

Contrast this to a mill that has had a set of "baby shaker" machines for some time. The superintendent senses that, if he could have an up-to-date rib racker for bottoms, he could make slipovers to good advantage. The racker is bought, the idle machines are in use, and a new line is opened for the mill.

Georgia operating executives discuss

Slashing, Weaving

J. C. Platt, who led the discussions

SLASHING and weaving problems were discussed at the fall meeting of the Textile Operating Executives of Georgia, held Nov. 10 at Georgia School of Technology, Atlanta. George S. Elliott, superintendent and plant manager, Pacolet Mfg. Co., New Holland, general chairman of the group, presided, and J. C. Platt, agent and superintendent, Aragon Mills, Aragon, led the discussions.

R. Donald Harvey, superintendent, Pepperell Mfg. Co., Lindale, was elected general chairman to serve during the ensuing year. J. C. Edwards, superintendent, Martha Mills, Thomaston, was elected vice-chairman, succeeded as a member of the executive committee by Allan Jones, superintendent, Muscogee Mills, Columbus. New members of the executive committee elected were Frank L. Asbury, superintendent, Hillside mill, Callaway Mills, LaGrange, and Harry H. Purvis, superintendent, Chicopee Mfg. Corp., Chicopee.

Lumps between rollers, excess gum, insufficient softener, and condensation of steam (resulting in lower temperature of cylinder) are causes of yarn sticking to the slasher cylinder, according to John White, overseer of slashing, Eagle & Phenix Mills, Columbus. P. W. Ellis, superintendent, Sibley Mfg. Co., Augusta, suggested cleaning the cylinder and changing the size mix from alkali to acid as possible remedies for yarn sticking. Several members cited "condensation" as the chief cause of sticking, which resulted in a general query as to whether anyone had ever seen a slasher equipped with a syphon device instead of the usual dippers for removing condensed steam. One man reported having seen two slashers equipped with outlet pipes located ¼ in. from the bottom of the cylinder which eliminated water very efficiently. Mr. Ellis suggested that it might be helpful to use an individual trap with each slasher.

Only one member reported having used aluminum sulfate in the size mix, asserting that ½ lb. aluminum sulfate mixed with 200 lb. pearl starch is useful in hastening conversion of the starch.

Consensus was that the proper temperature for the size box is 205° to 208° F., although J. I. Alford, superintendent, Covington Mills, Covington, recommended 200° for 30s yarn running 40 yd. per min. A few members maintained that the size temperature should be kept as near the boiling point as possible in order to secure the best penetration; others objected that boiling tenders the yarn.

V. J. Thompson, superintendent, Manchester mill, Callaway Mills, reported that irregular streaks or soft places 3 to 5 in. long appearing across the warp at irregular intervals may be caused by uneven level of size in box, faulty squeeze rolls, and improper blankets. Other members blamed, in addition to these factors, yarn slipping on cylinder, worn journal on top of squeeze roll, and too sudden starting of slasher.

The question, "How often do you lease?" brought forth the following answers: (1) every three warps on heavy sets, (2) every two hours, (3) when sets begin to "steal," (4) in case of breakout, (5) beginning of each run, and (6) "when necessary."

Consensus was that "rainbow effects" in weaving are due to a combination of causes, including (1) light drag-roll flexing, (2) drag on filling near middle of warp, (3) contraction of warp, and (4) tension on selvage. H. R. Gaffney, assistant general superintendent, Sibley Mfg. Co. and Enterprise Mfg. Co., Augusta, said that he had remedied this trouble by reeding two ends per dent and skipping a dent in the selvage.

Only one member reported having found a filleting material better than tin for covering take-up roll on loom—metallic card clothing wrapped and brazed on the roll after it has been turned down to proper diameter. Advantages claimed included: does not pick cloth, does not rust, does not require changing, holds cloth better.

Irregular harness, worn cams, bouncing shuttles, shuttles failing to box, excess power, and excess twist were blamed for looping and kinking of sateen filling.

Robert P. Sweeny, superintendent, Exposition Cotton Mills, Atlanta, offered the following formula as a means of figuring reeds: "Divide the width of the cloth plus ¼ in. by 100 minus per cent contraction in filling, to get spread of warp in reed. Then multiply width of cloth by ends per inch and divide by ends per dent to get number of dents. Divide latter result (number of dents) by former (spread of warp) to arrive at correct reed."

Sufficient air space in reeds to assure free movement of warp, 56 to 58%, was generally agreed upon as being the proper amount, although one member reported having used as high as 65% on sheetings.

Opinion was divided as to the advisability of using pre-bored pickers with old shuttles. Mr. Elliott pointed out that the chief difficulty lies in getting old shuttles to coincide with the pre-bored holes in new pickers.

Mr. Sweeny inquired as to how long spacer wires in twine harness should last and was told they should last the life of the harness in a humidity of 85 to 90%.

Consensus was that outside expert fixers should be employed for the more delicate jobs of overhauling, but that regular fixers should be used when practicable.

It was unanimously reported that more filling breaks occur when bobbins are nearly empty. Reasons cited for this condition include irregular tension, loose bobbin grips, bad quills, butts roughened by cleaning knife, improper spring alignment, and improper bristle angle.

L. L. Jones, Canton Cotton Mills, past president Cotton Manufacturers Association of Georgia, expressed interest in the discussion concerning "rainbow effects" in cloth. He stated that "crooked" cloth was a common complaint received from cutters and that its elimination would be a great forward step in manufacture.

Look to Your Drying...

Modern equipment will reduce costs, expedite deliveries, and improve product quality

By Birney F. Miller
Rasmussen & Co., Chicago

ONE important field in which numerous mills can find opportunities for making savings and for increasing operating advantages is in their drying operations. Obsolete drying methods and equipment are still in extensive use in the textile industry, despite the fact that modern, well-designed dryers can reduce costs, improve product quality, and provide other important advantages. It is well worth while, therefore, to consider briefly some of the current drying practices and the latest dryer developments and to discuss the relative advantages of the new and old systems in the light of today's needs.

The oldest and simplest drying method is natural drying on racks, ropes, or trucks in open rooms or cages. In many cases steam coils are used to speed the drying process. This method is still followed in many hosiery mills for drying hosiery in bundles and in many throwing plants for drying silk and rayon skeins prior to winding. It is also practiced by some mills for cotton, woolen, or worsted yarns. The drying period may range from 24 hr. upwards.

This method has the advantage of simplicity. It requires no sizable investment in equipment and little cost for steam. Its disadvantages are several. The loss of time in drying delays subsequent processing and thereby adds to the amount of inventory in process of manufacture. This means a larger tie-up of capital, with higher interest charges for the mills. It may mean also the loss of business through inability of the mill to meet adequate delivery dates. Another disadvantage is lack of uniformity in drying, due to lack of complete air circulation. This may mean delay in later processing, as wet or dry spots may be encountered. Exposure of the product to spoilage or soiling from one cause or another and the inconvenience of having it in the way of other processes are further drawbacks to this method. In many cases, more labor is required than with modern drying machines, and it will usually be true that this method requires more floor space than with a machine.

Open-room drying has been improved in some plants by the use of an inclosed, insulated room, where higher temperatures can be maintained. Occasionally air circulation is provided to shorten the drying time. This system has most of the advantages of the first, because the cost of steam coils, insulation, and one or two fans is not large. It has the additional advantage of quicker drying and less exposure to spoilage. Compared with drying machines, however, it still retains the disadvantages of time, labor, and space requirements. Uniformity, which is so important in any drying operation, is still lacking with such methods.

The first step in machine drying is the use of truck dryers. These machines consist of an insulated cabinet equipped with steam coils, fans for air circulation, and —in some cases—temperature controls. They accommodate one or more trucks, on which the stock to be dried is hung. This is the oldest type of dryer, and it is widely used for all types of yarn and, to a lesser extent, for hosiery in bundles and other products. The modern truck dryer has been improved over the older machines by the use of better air-circulating systems, direct-connected motor fans, more efficient insulation, and better construction. Drying time in these machines is usually less than 2 hr. and, under certain conditions, less than 1 hr.

Truck dryers give shorter drying periods than the room methods, thereby expediting deliveries. This is especially important today. If the dyehouses serve their own mills, inventories can be reduced and other processes accelerated; if they serve the trade, it means better ability to compete for business. Improved air circulation assures greater steam economy and greater uniformity in drying. In addition, decreased unit labor costs usually follow, because of the reduction in drying time and the increase in hourly production per man.

Automatic Dryers

Use of automatic dryers is the next step. These machines consist of insulated, steam-heated cabinets, through which yarn or other product is moved by means of continuous conveyors. Thorough air recirculation and temperature controls are provided. They are adapted to the operations of all mills or dyehouses which require speed in operations and to those with larger production requirements than truck dryers will economically handle. Compared with room and truck drying, automatic dryers have the advantage of insuring a dried product of uniform quality and moisture content. The steam and power efficiency is better, and important labor savings are possible because of the continuous and increased production per man-hour.

Automatic dryers have been greatly improved since they were first brought out. One improvement of note is the incorporation of a conditioning section in an automatic yarn dryer to assure a uniform moisture regain of the yarn. This eliminates all conditioning of yarn after it leaves the drying machine. Another recent innovation is the use of protective devices to keep the yarn from being snagged or soiled against the side walls, thereby permitting the poles to be loaded to the ends and increasing the production and efficiency of the machine. Other mechanical refinements include direct-connected fans, better insulation, and improved design and construction to reduce maintenance expense.

The mill now using room drying may well investigate machine drying. It has already been said that decreased drying time means a reduction in inventory and that it

increases the ability to make quick deliveries. In addition, any reduction in delay between processes adds flexibility to the whole mill operation; it may be possible to save space; it is often possible to consolidate a department by locating the machine convenient to the preceding and following processes, thus saving additional time and labor.

Truck dryers in many cases will be the answer to the disadvantages of room drying. They can be used for hosiery in bundles, yarn, and other textile products. Many plants have long been users of truck dryers and, in some instances, automatic dryers. But there are still numerous throwsters, hosiery mills, and other plants which might profitably discard present room drying for automatic or truck dryers. Furthermore, in numerous plants the truck dryers now in use are either obsolete or lack the advantages of an automatic machine on the same work. Users in this class, and those operating automatic dryers of the older type, may gain important advantages with a machine of the latest type.

It is well to reconcile theory with practice in any discussion of new equipment, and this is possible through the courtesy of several users who permitted the writer to make personal studies of dryer operations.

A change from natural room drying on overhead ropes to a truck dryer for hosiery in bundles enabled the Ajax Hosiery Mills, Phoenixville, Pa., to make a reduction of $3,600 in daily inventory in the gray goods finishing department. Drying time for removing about 10% of moisture from women's chiffon hosiery was reduced from 24 hr. to 30 min., a decrease of about 98%. Time between machine operations on these stockings was cut from 24 hr., or more, to 1 hr., making it possible to put through special orders with no delay and thereby adding greatly to operating flexibility. Labor cost for drying was reduced 34%, and the better quality of drying and improvement in drying conditions saved more than $2 per day in spoilage alone. In all, the total reduction in net drying cost was 40%. At some seasons of the year the savings are more than doubled, because of poor atmospheric conditions for room drying.

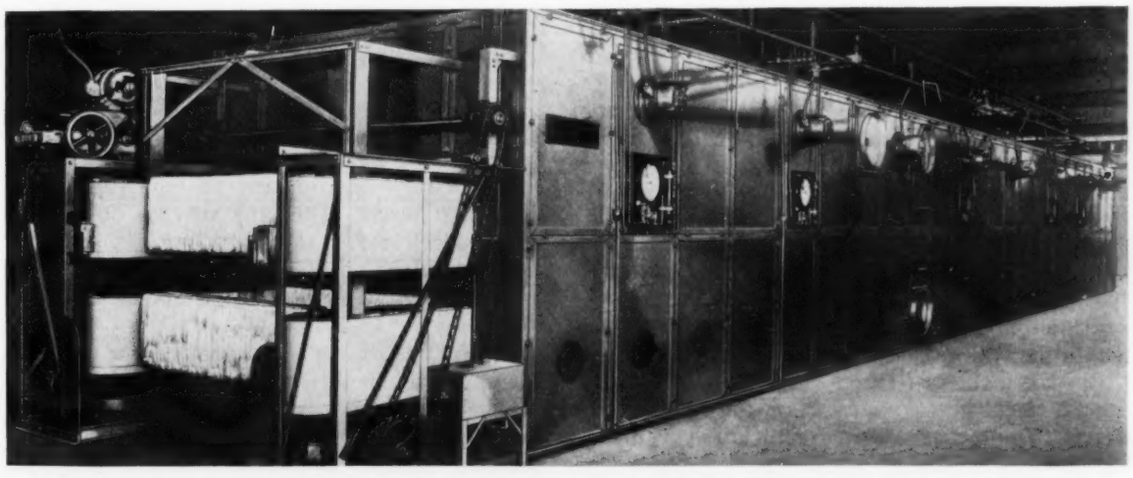
Drying Rayon Yarn

A case involving an automatic dryer is that of Malina Co., Inc., New York. Last year, when it moved from quarters where truck dryers had been used for some years to a new location in the Port Authority Bldg., this firm made a careful study of new equipment. This resulted in the purchase of an automatic skein dryer of the latest type. Rayon yarns of all grades and weights are dried by removing about 80 lb. of moisture per 100 lb. of gray weight. Compared with a truck-dryer this dryer eliminates all guesswork and permits the yarn to be dried uniformly to a predetermined condition. In addition, production is continuous, which means a more flexible operation. Better temperature and drying control is possible, and the temperature can be reduced as the yarn moisture content is lowered. This has resulted in greater uniformity and better quality of product.

To equal the hourly production of the present machine with the latest type of truck dryers, four units would have been needed. The automatic machine saves 43% of the floor space needed for truck dryers. This is a highly desirable advantage in itself where rentals are high or where room is needed for other equipment. The unit labor cost is reduced 38%; steam cost, 44%; and power cost, about 10%. At full capacity, the saving over truck-dryer operation is 38%.

In another plant—that of the Franklin Rayon Corp., Providence, R. I.—an automatic skein dryer of similar design, but with a double-tier conveyor, has replaced two older automatic dryers. This new dryer can turn out a production equal to both old dryers in 41% of the time, and it gives the dyehouse a potential capacity which relieves the management of any worry due to reduced working hours under the code or to increased hourly rates for labor. It will return notable savings in direct costs. A comparison with the former machines on the basis of a run at full capacity, shows that the hourly production per square foot of space in the drying department has been increased 140%; yarn quality has been improved; conditioning after drying has been eliminated; labor cost per pound has been reduced 49%, power nearly 70%, and steam more than 10%. The total net saving in drying cost is 37%.

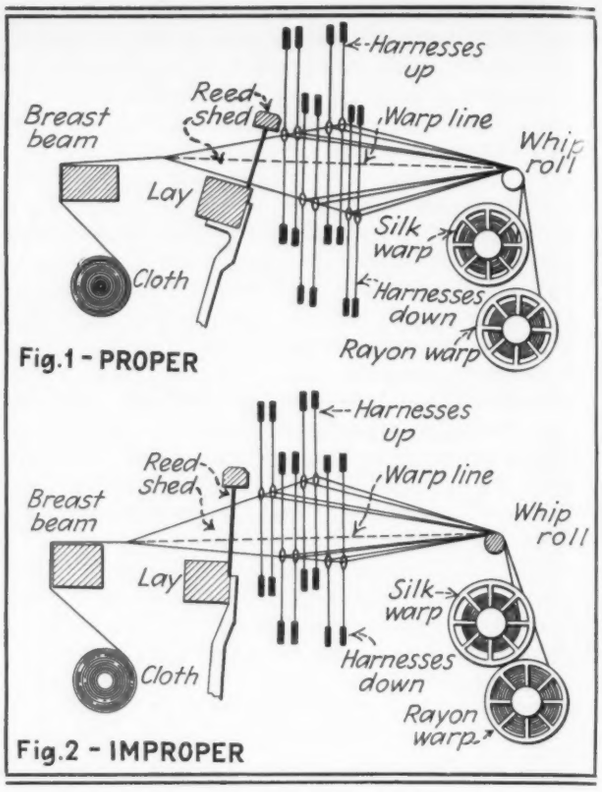
These cases, which deal with hosiery and with rayon yarns, find duplicates in other operations. Similar savings in cost, coupled with the other advantages cited, can be expected from the use of modern dryers on cotton, silk, woolen, worsted, and mixed yarns, as well as on various knitted and woven fabrics. Adoption of machine drying by the silk throwster should help to prevent elongation of yarn in winding and the formation of hard bobbins, and, in addition to reducing inventory and drying time, would undoubtedly give additional savings in winding and subsequent operations.



Automatic skein dryer recently installed by Franklin Rayon Corp., Providence, R. I., equipped with double-tier conveyor, conditioning section, and yarn-protecting device.

From Crepe to Satin

By John Picone



Alterations in loom settings required when changing class of fabric

SEVERAL changes in machine settings must be made when a satin warp is to be mounted in a loom which has been running crepe. The timings of shed and pick in particular, require adjustment.

It is advisable to have the shed close when the reed is at least ½ in. away from the fell of the cloth. The opening of the shed will have to be reduced, as the lift will be too high, causing a strain on the warp-ends which weakens and breaks them. Care must be taken to give the cloth a proper cover.

In weaving crepes, the harness should be closed when the loom is slightly over front center. Make sure, however, that it is the same on each pick; otherwise proper results will not be obtained. The way to accomplish this is to set the harness and lay when both shuttles are in the double box; then the loom should be turned over one pick and set accordingly. When weaving soft silk, the harness for crepes should be set so it will close about ¼ in. away from the fell of the cloth.

In timing the pick for crepe, the shoe should be set slightly away from the bottom shaft, and the pick should start when the reed is 2¾ in. away from the fell of the cloth; otherwise there will be trouble with ends breaking, shuttle marks, flying shuttles, and other difficulties.

The pick motion must be so adjusted that the shuttle will not chafe the edges and break them. It is advisable that for satin the pick start when the reed is 3 in. from the fell of the cloth, but in many cases the same looms previously used for crepes will not stand up at 3 in. unless radical changes are made, due to inferior and worn-out parts.

It is advisable to put new feeler wires in the stop motion and file off the rough edges on the screws that hold the feeler wires when changing to satin. Otherwise loops will be formed under the cloth (or on the face), causing many seconds. Let the tension on the center motion be very light in order that cockled filling and loops will be avoided.

Examine all jacks and hooks or vibrators on the dobby and remove all those worn out.

For single-end satins have the whip roll slightly higher than for crepes. It is impossible to state the correct height of the whip roll in inches, as the warp brackets and stands vary on different looms. The accompanying sketches, however, show the proper method and the improper method of setting the roll for crepe and offer a certain amount of guidance for all fabrics.

In Fig. 1 is indicated the proper shed. It forms a diamond shape due to the fact that the bottom and top sheds open evenly. To obtain this diamond-shaped shed, a cord or straightedge should be run from the breast beam to the whip roll and the roll lined up even with the breast beam. The only way to do this properly is with a level. After the warp line has been secured, the shed should be adjusted by means of the adjusting rod connected to the dobby so that both sheds have an even lift.

In Fig. 2 is shown an uneven shed or warp line. When looms are set in this manner, all kinds of troubles may occur—starting marks, shires, barré cloth, etc. Also one does not get the proper cover on the cloth.

When running satins, keep as much weight as possible on the warp—the more, the better. Otherwise, there will be trouble with shires and barré cloth.

Defective Overcoating . . .

By George Rice

Cause of poor finish traced to loom

WE HAD an overcoat fabric in process of manufacture in our mill made up of thick half-wool yarns loosely woven and then subjected to heavy fulling for the purpose of closing the interstices in the texture as much as possible to make the cloth nearly airtight. The strenuous fulling was supposed to close the spaces between the threads. Sometimes it did and sometimes it did not.

The looseness of the weave in the loom assured quantity production. A loose weave does not require so much twist in the yarn, nor so many threads per inch in the warp or picks in the filling. The loose texture in this case also assured a greater degree of elasticity in the finished cloth, even though energetic fulling and related finishing processes tended to tighten up the threads both warp and filling ways. Elasticity was a feature specified as important in this particular order of heavy weights.

But loose weaving depends more upon the regularity of its texture than does close weaving. Deformities resulting from tight or loose picks, or from warp threads being forced out of alignment by deflected reed wires are a menace to the finished aspect of the cloth, although they might not be serious in the case of close-woven goods.

The goods were in process of weaving on three different looms. The pieces from two of these looms did not finish so well as those from the other loom.

A smooth dress face finish was put on the cloth similar to that given beavers. The same procedure was observed with the pieces from all three looms. An investigation was begun to determine why two pieces out of three lacked the stability of texture, smoothness of finish, and general high qualities, when all three were woven with yarns of equal raw material simultaneously carded, spun, and woven.

One loom of the three on which the pieces were woven was found to be picking normally. The shuttles were driven from the boxes without effort. They left without a quiver and traveled straight through the shed trailing an even stretch of filling. The other two looms picked hard. The lays jumped a trifle, shivered, and acted in a halting manner at every pick. The shuttles were driven from the boxes with apparent difficulty. The eye could follow them through the shed by the manner in which they frequently contacted with the warp yarns. They clicked on the mouth pieces of the opposite boxes and often nearly trapped there. They were on the verge of flying out at times.

Shuttles cannot leave a trail of evenly deposited filling when operated under such conditions. The filling was stressed on some picks and loosely deposited on others. An examination of the pickers on these two looms revealed a condition like that shown in Fig. 1. Good pickers, made by a reputable firm, had been subjected to abuse through lack of packing on the spindle so that they had been worn as at *B* by contacting with iron instead of a cushion-like packing. Lack of bumper packing had allowed the sticks to cut into the pickers, as shown at *A*. The general neglect had permitted the pickers to wear unevenly on the spindles, so that they tilted forward and were out of line, as indicated by the dotted line *C*.

Furthermore, the pickers had been ordered from the manufacturer without proper regard to measurements and were too short. This threw the points of the shuttles too near the edges of the heads, resulting in a premature wearing down of the rawhide, as shown at *D*. All this made the two looms pick hard and drive the shuttles unsteadily through the sheds.

The third loom was just across the section line within the jurisdiction of another fixer. The pickers on this loom were in serviceable running condition, as shown in Fig. 2. They were of the same brand of manufacture. The fixer had seen to it that they were the proper size. The points of the shuttles fitted precisely with the center of the picker heads. The packing for the spindles was in place. The soft, loosely woven threads were being uniformly positioned for the transverse and longitudinal raising which these goods had to be put through in order to receive the type of finish desired.

The result of the investigation was an inspection of the pickers on all of the looms of the mill. A number were found ready for replacement, having either become worn through normal use or through the neglect of the fixers to keep up the spindle and bunter packing. The force of the blow of the stick should be absorbed by the bunter packing after the stick has reached its terminal in the swing of the pick. This force should not be spent on the picker. Pickers are there to act as a driving medium and are staunchly made for this purpose. They are not there to check the momentum of a powerful stick driven with great force 80 or more times a minute.

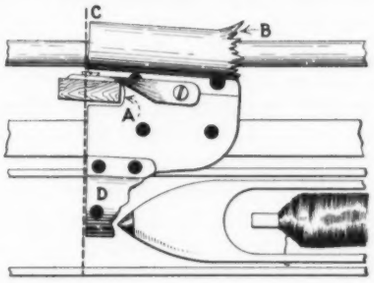


Fig. 1. A loom cannot weave perfect cloth when the pickers are in the worn condition shown here

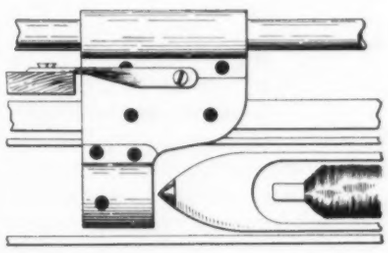


Fig. 2. Replacement of worn pickers with new ones is the only effective remedy

New chemicals give promise of greater efficiency in twist setting and

Yarn Conditioning

By G. M. Pearsall and N. D. Harvey, Jr.

Pearsall & Goldsmith — *Carbide & Carbon Chemicals Corp.*

WITHIN the last year or two serious consideration has been given to the possibility of improving on the methods employed in the operations of twist setting and yarn conditioning. Textile men have begun to analyze their present practices and to investigate the advantages of the various types of equipment and the new chemical compounds which have been developed recently. In this article we shall first discuss the action of water and certain other chemicals on textiles and then shall describe some practical experiments which have been carried out on worsted yarn.

Water is the cheapest material which can be used for twist setting and yarn conditioning if the cost per pound for materials is the only factor to be considered. It is available in unlimited quantities at very little, if any, cost except for the handling and treating. Water, in itself, exerts no harmful chemical action on cotton, rayon, wool, mohair, etc., and it has the ability to swell and soften the fibers and render them plastic and workable. Elimination of internal fiber strains and, therefore, setting of twist, may be accomplished by storage of the yarn in a humidified atmosphere. This, however, is a lengthy procedure, which is materially shortened by modern methods and equipment. When liquids are employed for twist setting, thorough penetration is usually desirable. This is due to the fact that the effect obtained—from the standpoint of completeness in the minimum length of time—is in proportion to penetration. Water, due to its relatively high surface tension and to the high interfacial tension between it and fiber surfaces, does not readily wet out unboiled cotton or other textiles. It is true, of course, that over a period of time, particularly with such mechanical assistance as pressure or agitation, water will penetrate and will be absorbed. For efficient, rapid, and controllable results, however, some material must be added which will depress surface and interfacial tensions.

Materials of this type are surface-tension depressants, penetrants, or wetting agents. These compounds include alcohols, sulphonated fats and oils, sulphonated napthalene derivatives, and the salts of sulphated alcohols.

Water containing a penetrant is suitable as a twist-setting medium. However, the evaporation rate of water is sufficiently high to permit loss of appreciable quantities in a short time. Therefore, the conditioning effect obtained is only temporary and is quite variable. If a material is used which evaporates prior to complete penetration through the mass of yarn, the setting of twist is not complete and uniform. Sprinkling or spraying of the solution on the yarn gives no assurance that sufficient has been applied to reach the center. The outside of the yarn is excessively wet, but evaporation may occur before the center has been reached. Steaming appears to be a decided improvement, and the newer pressure systems materially shorten the time required and improve uniformity of twist setting.

Conditioning of the yarn is equally as important as twist setting. Since stock is purchased with a definite moisture content as a basis for price setting, there is a large loss involved when processed stock is sold with less than its permissible regain. Also, when the textile is well conditioned, its feel is enhanced. Water increases the weight of goods, but textiles conditioned with water will lose much of this moisture in a comparatively short time unless they are kept in a humidified atmosphere. Consequently, there is a definite field of application for a non-volatile compound possessing the twist-setting and conditioning properties of water.

Several practical experiments have been conducted which indicate the possible merits of slowly evaporating compounds when used with water.

The first experiment was designed to illustrate the need of complete and rapid penetration throughout the yarn if uniform and satisfactory setting of twist is to be obtained. A rather volatile compound possessing the ability to lower surface tension was evaluated against a slowly evaporating solvent. Alcohols (such as isopropanol) and chlorinated solvents (such as ethylene dichloride and trichlorethylene) fall in the former class. An emulsifying agent, such as sulphonated oil is required with the insoluble chlorinated compounds. The solvent having a slow evaporation rate was diethylene glycol. It is a hygroscopic, water-soluble liquid which is suitable for the purpose. The worsted yarn used was a plaited yarn of singles 21s wound on flyer bobbins. The bobbin carried 1,250 yd. weighing 48.17 grams. The solution applied was water containing 2% of a volatile solvent together with an emulsifying agent. Results of this test are shown in Table I.

It will be noted that the twist-setting effect was confined to the outside of the bobbin. This is worthy of comment, and appears to be attributable to at least two factors. The flat winding of the yarn on the bobbin provided a severe test for the penetrability of the solution. Coupled with this was the rapid volatility of the penetrant, which caused the material to be lost prematurely. The setting of twist was accomplished only to about 40% of the length of the yarn.

The next three experiments were conducted for two reasons: (1) to determine the effect of humid atmosphere on the twist setting effect; and (2) to determine the effect of a volatile wetting agent on the efficiency of water in twist setting.

Plaited yarn, warp wound on flyer bobbins, was used. Four bobbins were treated as follows: Bobbin No. 1 was sprayed twice with a 2% solution of a volatile wetting agent in water. The bobbin was then exposed to the atmosphere in an open container for 3 hr. Bobbin No. 2

was treated as above but was held in a closed container for 3 hr. Bobbin No. 3 was sprayed with plain water and held in a closed container for 3 hr. Bobbin No. 4 was taken from the spinning frame and exposed to the atmosphere for 3 hr. All samples were held at a temperature of about 75° F. The bobbins are 3 in. between heads and, when wound, contain yarn to a depth of about $\frac{5}{8}$ in. They carried 1,115 yd. of yarn. Results are shown in Table II.

It will be noted that from 10% to 11% solution was applied, also that after 3 hr., the yarn treated with a volatile wetting agent had lost almost 50% of this moisture when held in an open container.

After the 3-hr. period, 20 yd. skeins were reeled from each bobbin at varying distances. The weights of these (shown in Table III) indicate the degree to which the solutions penetrated. From the data given in Table III it will be noted that all bobbins lost moisture very rapidly as the center of the bobbin was approached; also it will be noted that use of a penetrant tended to produce deeper penetration, and the moisture was held slightly better.

The degree to which the twist of the yarn had been set by each treatment was noted from the appearance of the skeins after reeling, and by the distance apart the two hands are as they bring together the two ends of a length of the yarn to the point of kinking (see Table IV). From this experiment, we draw the following conclusions: There appears to be a definite advantage in holding the yarn in a humid atmosphere for a certain period of time. Use of a penetrant eliminates the surface wetness and sets the twist of the outer layer of yarn. A very small quantity of moisture is required to set twist. The variations in the distances of the hands at the first kinking indicate marked ununiformity.

In the last experiment, five skeins of 60-64s quality 2-ply worsted warp yarn were employed. Skein No. 1 was treated with 50c.c. water and 10 c.c. volatile wetting agent. Skein No. 2 was treated with 50 c.c. water and 10 c.c. high-boiling solvent. Skein No. 3 was treated with 50 c.c. water, 10 c.c. high-boiling solvent, and 0.25 gram non-volatile penetrant. Skein No. 4 was an unscoured blank. Skein No. 5 was a scoured blank. The skeins were first scoured, soaked in their respective solutions for 60 sec. and extracted. The reconditioned weight and percentage gain are shown in Table V. The high-boiling solvent used in this test was diethylene glycol; the non-volatile penetrant was sodium alcohol sulphate. The moisture retained by skein No. 1 was less than in No. 2 or No. 3. Since extraction was the same in each case, the difference is due to some property of the solutions.

The gain in weight resulting from the treatments indicates the definite advantage of a high-boiling, hydroscopic agent. Furthermore, the greatest increase in weight was found when a non-volatile penetrant was incorporated with a high-boiling solvent. Skein No. 1 retained 28% of the penetrant applied; skein No.. 2 retained 73%; skein No. 3 retained 81%. Skein No. 1 wet out most efficiently.

It appears from these investigations that the commercial production of high-boiling solvents and non-volatile penetrants now makes it possible in twist setting and yarn conditioning to obtain the beneficial effects possessed by water, with added features of more rapid penetration and more lasting effects. In addition, such compounds should allow greater efficiency and better control. The experimental procedure used to obtain the data was not under strict control, nor was it of a scientific nature. Conditions approximating those of practice were maintained so far as possible. However, the conclusions drawn may be subject to some criticism. It is hoped, nevertheless, that the ideas offered may be sufficiently practical and applicable to arouse interest in further investigations.

Table I. Weights in grams of 20-yd. sections of bobbin

Reconditioned Sample	Time Elapsed After Treatment	0–20 yd.	60–80 yd.	120–140 yd.	180–200 yd.	400–420 yd.	520–540 yd.
Blank	0 min.	0.783					
at 72/58		0.769					
Moisture		0.014					
No. 1 Bobbin	5 min.	1.396	1.140		0.875		
at 72/58		0.826	0.806		0.826		
Moisture		0.570	0.334		0.049		
No. 2 Bobbin	30 min.	1.030	0.984	0.856			
at 72/58		0.771	0.787	0.795			
Moisture		0.259	0.197	0.061			
No. 3 Bobbin	1 hr.	1.020	0.985		0.815		
at 72/58		0.802	0.783		0.777		
Moisture		0.218	0.202		0.038		
No. 4 Bobbin	1½ hr.	0.890	0.890		0.793		
at 72/58		0.814	0.773		0.747		
Moisture		0.076	0.117		0.046		
No. 5 Bobbin	2 hr.	0.771	0.781		0.797	0.757	
at 72/58		0.743	0.752		0.770	0.739	
Moisture		0.028	0.029		0.027	0.018	(Note 1)
No. 6 Bobbin	3 days					0.818	0.780
at 72/58						0.813	0.776
Moisture					(Note 2)	0.005	0.004

Note 1: The inner skein was not entirely "killed," but undoubtedly was satisfactory for weaving.

Note 2: Because of slow and incomplete penetration, a distance of about 500 yd. from the outside of the bobbin appears to be the limit to which the yarn is "killed" properly for weaving because of slow and incomplete penetration.

* The yarn to the left of the line is "killed" enough for weaving.

Table II. Yarn weights and gross moisture content in grams

	No. 1	No. 2	No. 3	No. 4
Bobbin and dry yarn	76.58	76.545	76.35	78.215
Empty bobbin	32.79	34.00	33.32	33.74
Yarn on bobbin	43.79	42.545	43.03	44.475
Average yarn count	1/20.6	1/21.2	1/21	1/20.3
Fresh sprayed bobbin and yarn	81.50	81.175	80.73	.....
Moisture applied	4.92	4.63	4.38	.....
Moisture applied	11.2%	10.9%	10.2%	.....
Bobbin and yarn after 3 hr	79.34	81.175	80.75	77.85
Moisture when testing	2.76	4.63	4.38	.....
Moisture when testing	6.3%	10.9%	10.2%	.....

Table III. Moisture content of skeins in grams

Sample	A 0–20 yd.	B 220–240 yd.	C 440–460 yd.	D 760–780 yd.	F 930–950 yd.	Treatment
No. 1 Bobbin	0.809	0.795	0.798	0.811	0.787	2+ volatile
at 72/58	0.780	0.757	0.785	0.804	0.780	wetting agent
Moisture	0.029	0.038	0.013	0.007	0.007	in water
No. 2 Bobbin	0.840	0.757	0.795	0.767	0.730	Same as No. 1
at 72/58	0.740	0.734	0.777	0.760	0.723	but in container
Moisture	0.100	0.023	0.018	0.007	0.007	3 hr.
No. 3 Bobbin	0.871	0.785	0.813	0.810	0.723	Sprayed with
at 72/58	0.760	0.767	0.797	0.801	0.715	water and held
Moisture	0.111	0.018	0.016	0.009	0.009	sealed as in No. 2
No. 4 Bobbin	0.796	0.786	0.835	0.813	0.780	Untreated
at 72/58	0.788	0.777	0.825	0.806	0.771	
Moisture	0.007	0.009	0.010	0.007	0.009	

Table IV. Distance in inches between hands at first kinking

No. 1	No. 2	No. 3	No. 4	
10	20	22	40	0–20 yd.
15	12	14	40	220–240 yd.
30	24	25	40	440–460 yd.
33	30	32	40	760–780 yd.
36	34	34	40	930–950 yd.

Table V. Reconditioned weight in grams and percentage gain in moisture

	Skein weight at 76/61 in grease 2/1/34	Skein weight at 74/61 scoured 2/2/34	Scour loss per cent	Moisture extracted per cent	Reconditioned weight at 68/54 2/5/34	Gain %
No. 1	1.756	1.634	6.72	33.4	1.645	1.77
No. 2	1.788	1.674	6.16	44.2	1.754	5.84
No. 3	1.847	1.714	6.99	44.1	1.807	6.47
No. 4	1.699	1.695	....	....	1.677	....
No. 5	1.800	1.698	5.4	....	1.684	....

THE WAY TO *Work with Men*

By A. B. Brown
Belle-Vue Mfg. Co., Hillsboro, N. C.

◆ *The author of this very human article "works with men." He is carder and spinner at Belle-Vue. He tells his story simply but in a way that indicates he probably practices what he preaches.*

SELECTING men, training men, furnishing them the incentive of pay elastic to effort, are important elements but not the whole of man-handling. There are further traits of human nature that every manager or foreman must consider if he is to increase output and reduce cost. . . .

Joe Smith had worked hard and efficiently all winter in a cotton mill in South Carolina. He had saved $175 and went to New York to enjoy it. It did not make any difference to Joe how much of it was bonus money, earned by being more skilful or by exceeding the mill's standard in operating his set of jacks. His real reward was to have a good time while in New York, for hadn't he worked hard, and wasn't he entitled to a little pleasure? Within three or four days, thanks to friends of both sexes, Joe was "broke," whereupon he stretched himself and soliloquized: "Oh, well, come easy, go easy; I think I will go back to work again."

Joe's state of mind was fairly typical of a goodly percentage of men who work under a hard monotonous drive—wonderfully efficient at work, and equally efficient at spending the proceeds thereof, seeking a relaxation that is absent from their occupation, and for which their souls seem to hunger. Disgracefully wasteful this may appear, but before we criticize we must understand the mental condition that originates in the monotony of certain kinds of work.

Employees cannot be handled alone in terms of maximum man-power; attention must be paid to their spiritual rewards, and in so far as soul-hunger may be partly satisfied during one's occupation the excessive waste of reaction may be reduced. Let us indulge a certain relaxation in all operations, instead of denying mental rewards or desire for them during occupation.

Insufficient attention is being paid to the human side in the mad rush for so-called efficiency, for man may no longer be regarded as a machine. There are too many opportunities open to the red-blooded man of this day to necessitate his accepting employment which is open to him only on that basis. We all know of many instances where men are continuing in positions for less money than they are offered, or than may be obtained elsewhere, because of the satisfactory conditions and consideration they enjoy where they are. There are sufficient of these cases to prove that money is not always the successful competitor with occupational goodwill. Much antagonism has been created against efficiency because of the false interpretation which has been placed upon the plan by many who have seen only the hard, driving side of the question. Men are likely to get the idea that they are being "speeded up" only to enhance the profit of the employer, and thus the spirit of resentment may be aroused within them which will defeat the very purpose of the plan.

Efficiency, in fact, is "speeding down," but making the motions count for something more. It should save labor, and physical as well as mental strain. "Fewer motions—more results" is the keynote. Sometimes it is the person, sometimes the machine or the operation which has to be changed. The worker's mind must be cultivated in advance of his body. Ample opportunity must be given for a full understanding of the meaning and advantage of operative standards and rewards to the end that all workers, from top to bottom, will feel the same moral responsibility to meet standard conditions in their occupations that a merchant should feel in giving sixteen ounces to the pound or thirty-six inches to the yard.

Operative standards are not established in a day, they have to deal with every controllable act of our lives, whether it be for hire or for our own service. The standards necessarily run afoul of our habits and whims, as well as of the unwritten laws of many crafts. No efficiency work was ever successful that did not earn for itself the approval and satisfaction of the worker, or, in other words, his spiritual cooperation. We do not work well under any system, if we have the strain of machine methods in our minds, yet in our very capacities as executives we may be endeavoring to press that yoke on those under our supervision, without a thought that the same sentiments and feelings which control our disposition to work, also exist in the minds of those associated with us. If you have worked for a man or a firm that did not give you the cheer and comfort of a certain comradeship, the chances are you quit the job and found a more congenial atmosphere. Under that influence the best which was in you came out, and you "delivered the goods" that you could have delivered to your former employer if he had known how to encourage you. All effort, to be effective and gratifying, must be collaborative.

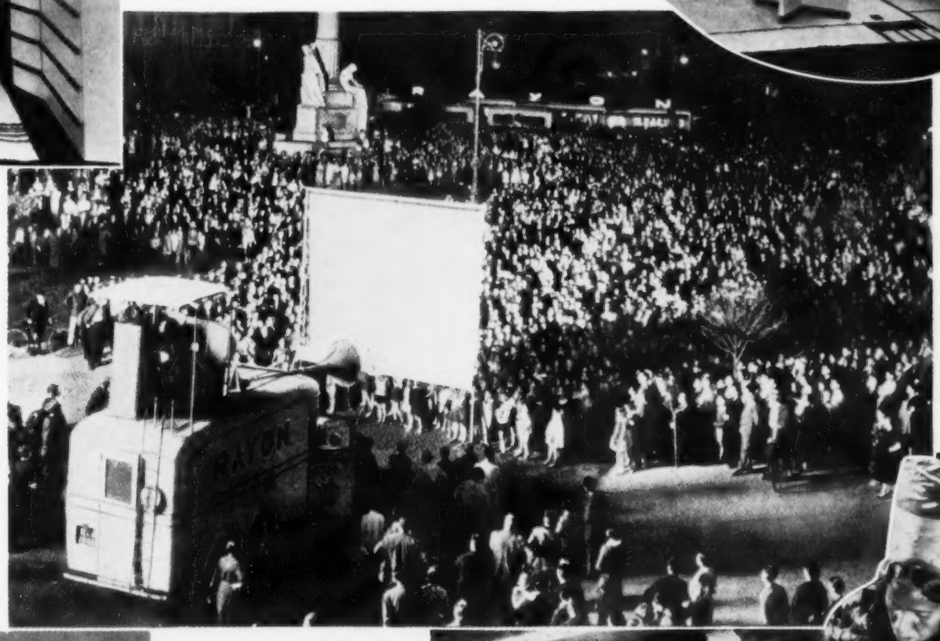
One need not be sentimental in this matter. We often find men who are apparently successful, who say there is no sentiment in business—yet there is no greater asset to any business than occupational good will. It is never seen in a financial statement and would probably be blue penciled if it were stated and appraised, because of its intangibility. Nevertheless, it is one of the most important factors in developing a successful business.

The ancient and honorable game of baseball is an "efficiency" game, and whether you are an expert who gets every ball hit your way, or one who makes an error of every chance, you may get an equal amount of pleasure out of the game. It is the standard of the game that tells the results. Our efficiency in the mill may be expressed in percentages, just as well as baseball batting and fielding.

◆ THROUGH THE EYE OF A CAMERA ◆

AN EXHIBITION of contemporary American industrial art will be open through December to Jan. 6 at the Metropolitan Museum of Art, New York. It features textiles. Illustration at left shows fabric group designed by Carl H. Mattman, Jr., of A. M. Tenney Associates. Below and to the far left are two views of "Room for a Lady" designed by Ebel Saarinen; all the textiles there are from Cranbrook Linens. In other parts of the exhibit are velvets from Openhym and Blumenthal, rayon designed by DuPont Rayon Co., bed coverings by Cannon, rugs by Bigelow-Sanford, Klearflax and Karagheusian, silk by Cheney, etc.

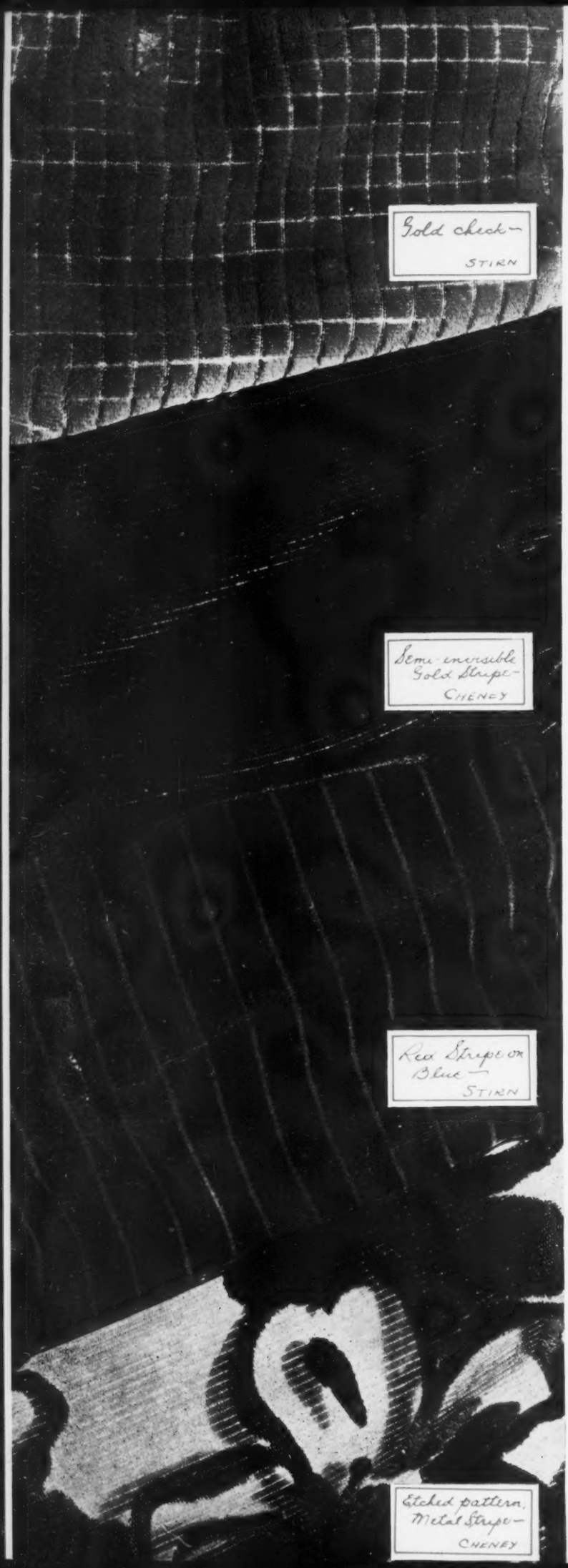
RAYON motor truck train (below) which has toured Italy in interests of rayon promotion is shown set up for entertainment of crowds in a city square. One truck projects movies and is equipped for sound. The other trucks are show windows on wheels with latest rayon products on view.



AMERICAN THREAD CO. offers mending floss in a cellophane-windowed package with 10 little reels of 20 yards each in a range of useful colors

THE HANDCRAFTS of the Near East are being encouraged systematically—Here is a Terkmenian woman at work on a Tekin carpet. (Sojuzfoto)

The Velvet Family Grows



TEXTILE historians of a decade hence may disagree on many points regarding the eventful year of 1934, but it is safe to assume that they will unite in ranking the velvet revival as among the year's most significant developments. This new popularity of pile fabrics, which is so widespread as to resemble a Victorian renascence, has spread through the apparel field and now is manifesting itself to no small degree in the upholstery and drapery divisions. Make your own choice as to the cause of the revival; it is attributed variously to the glamor vogue, to repeal and to the end of the depression. However, considerable credit also must go to the notable styling and merchandising work accomplished by the manufacturers themselves.

It was no accident that the velvet apparel industry was able to raise its prices this fall, at a time when textiles generally were in the doldrums. The rise was based on an oversold market condition in certain lines, which in turn was largely the result of an energetic drive by manufacturers toward wider markets. This expansion effort found its major success in daytime wear and accessories, but it also served materially to tighten velvet's hold on the formal evening wear market. A wide range of velvets suitable for daytime wear was introduced this year and these fabrics are winning acceptance in three markets where hitherto velvets have not been so strong, namely, street suits, daytime coats, and daytime dresses. Tweed velvets, closely resembling their woolen prototypes in appearance have found particular favor. Another significant innovation was the velvet sports hat; this was made possible through clever styling and manipulation by milliners, whose work was effective in lending the required casual lines to the hat. Similarly in the accessories field merchandising effort has increased the use of velvets for bags, shoes, jewelry, scarfs, etc.

In formal apparel velvets, glamor and glitter are the keynote. Metals are employed in these fabrics to a degree probably never before equalled. The stiff Lyons all-silk line grows increasingly popular for evening gowns and wraps, and this trend promises to become more pronounced during the coming year. Evening velvet styles divide themselves into two apparel groups: Lyons all-silk velvet for the bouffant mode and the robe de style, and transparent light-weight rayon velvets for the clinging gown. However, recent months have brought forward still another fabric, a semi-stiff rayon velvet, which combines certain characteristics of Lyons with the flexibility of the transparent. June Hamilton Rhodes, managing director of the Velvet Guild, whose organi-

Novel effects widen market in apparel, draperies, and upholstery

zation is entitled to the lion's share of credit for development work in the apparel field, regards the semi-stiff rayon velvet as of more than passing significance and as likely to become increasingly important next year. This fabric retails at $2.75.

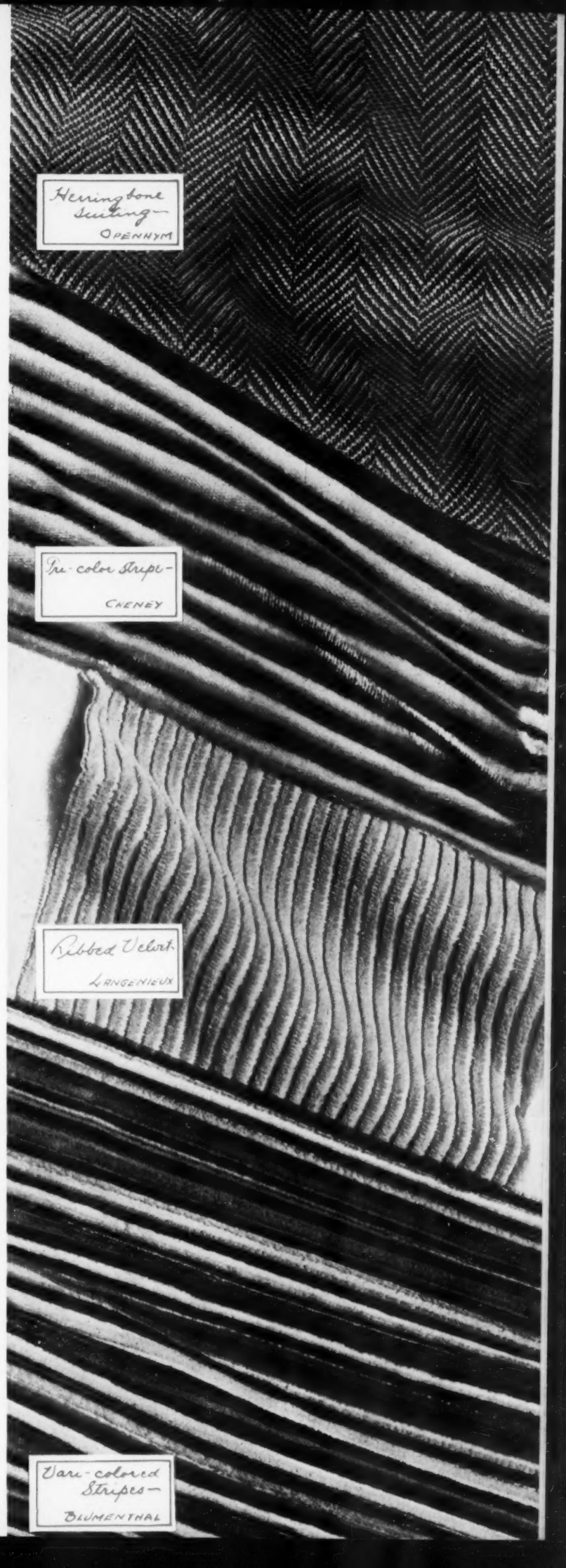
The development work accomplished by the Guild members this year was unusually wide in scope; this is manifest in the fact that during the season now closing, 75 new different variations of surfaces were offered to the trade by these manufacturers alone. These variations included Paysanne novelties, fur velvets, new variations of crystelle, frost velvets, Lastex velvets, linen velvets, etc.

The metal velvets are so important as to merit a paragraph by themselves; they run the gamut of metallic possibilities, from ornate sumptuous brocades, to conservative designs in which the metal is just barely visible through the pile.

The popular raised design fabrics are given new interest by the use of metal threads.

While reluctant to make definite predictions, fashionists say they expect velvets to maintain their current popularity through 1935. Assuredly the accomplishments of the Velvet Guild have laid the foundation for continued healthy activity. One of the fundamental reasons for the current success of apparel velvets is the high standard adhered to by manufacturers in construction, design and finish. Maintenance of this standard by Guild members is required in a rule of the Guild which stipulates that all new fabrics must be approved by technical departments of all member-firms before these lines can carry the Guild seal.

Better timing of the velvet season among retailers also helped to stimulate demand this year. Thanks to educational work by the Guild leading stores agreed to delay velvet openings from Aug. 1 which has been the customary date, to Sept. 15. It was felt that August was too early for successful merchandising and this found confirmation in the spirited demand which followed the mid-September promotion. Answers to a questionnaire which the Guild sent to 91 leading stores throughout

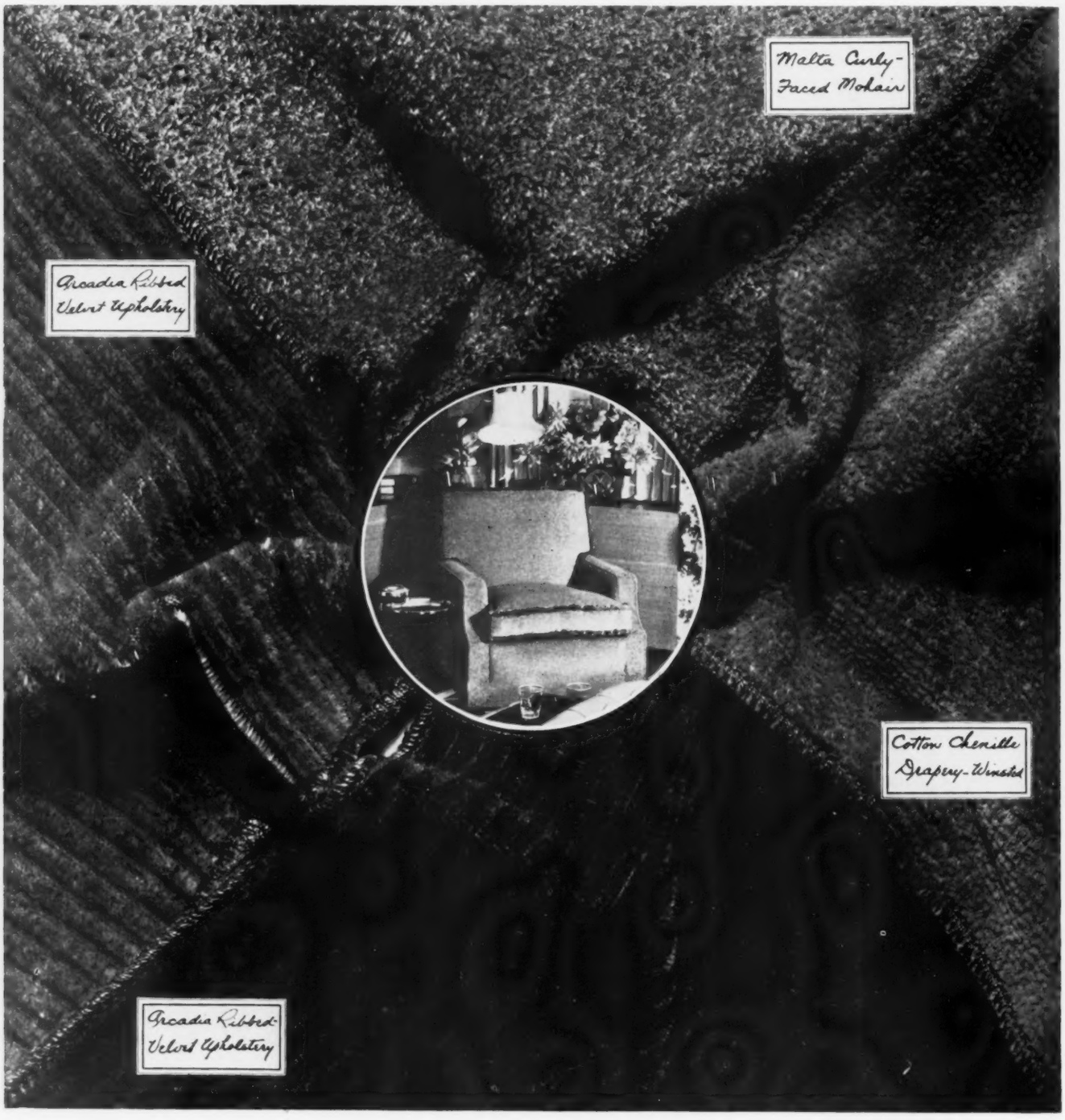


the country showed that 82% of these preferred higher rather than lower wholesale prices for velvets.

One feature of the nation-wide promotional drive conducted by the Guild was the mailing to 1,800 newspapers of mats of illustrations showing the newest velvet styles. The names of fabric manufacturers and of local stores selling velvet merchandise were keyed in with these illustrations, thus effecting a complete mill-to-consumer tie-up.

Velvet's revival is no less significant in the other pile fabric divisions, notably in upholstery and draperies. No doubt about it—the glamor vogue *is* contagious! Having left its imprint on velvet apparel, it now shows itself, though much subdued, in velvet furnishings. Upholstery velvets, usually slow to follow new fashions, are taking on added lustre, and weaves have been developed which give a more spirited identity to furniture. In contrast to the drab mohair-and-cotton friezes of last season, manufacturers this year offer lustrous and glowing surfaces. Metal threads are becoming popular in upholstery velvets, which permits more scintillating effects. The new draperies equally reflect the glamor influence. In construction, design, and effects, these lean to brightness and luxuriousness. The glamor draperies have been well received, manufacturers report. All-in-all, indications are that during 1935, decorative textiles will have the color and zest of the new "cocktail era."

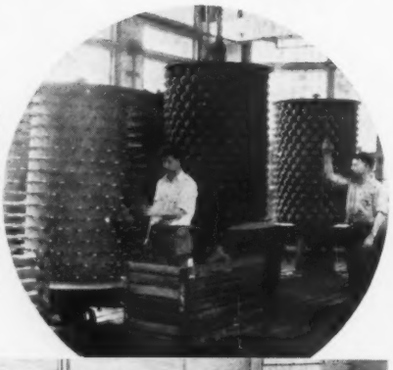
The fabrics which we illustrate below are from the Ca-Vel line of Collins & Aikman. The Malta and Arcadia styles are of mohair guaranteed for five years against moth damage. The Winsted is a cotton fabric for drapery use.



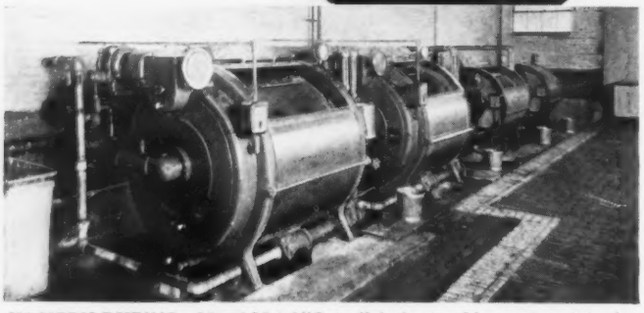
VERSATILITY. Fabrics and vanity case of Eastman acetate photographed on Eastman acetate film—a picture which reflects the broad experience of the Eastman organization in the field of cellulose acetate uses. When you use Eastman yarn, you are taking advantage of Eastman's world leadership in cellulose acetate research. A. M. Tenney Associates, 171 Madison Ave., New York. Sales representatives of Tennessee Eastman Corp., subsidiary Eastman Kodak Co.

EASTMAN ACETATE YARN

Dye Plants of every type prove value of **MONEL METAL**

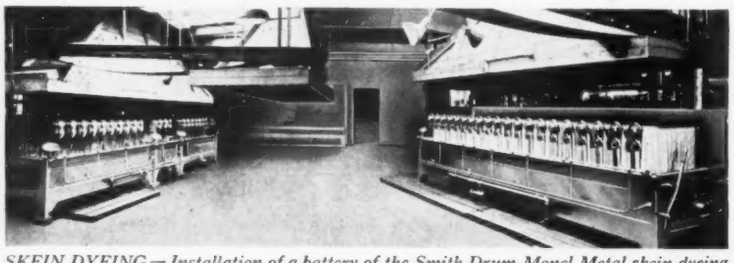


PACKAGE DYEING—View of package dyeing equipment at Thies Dyeing Mills, Inc. Monel Metal is used here for the package spindles. The Larson Tool & Stamping Co., Attleboro, Mass., are specialists in the manufacture of Monel Metal spindles for every type of package dyeing . . . yarns, roving, slubbing . . . as well as for tinting.



HOSIERY DYEING—Monel Metal "Super" dyeing machines, rotary type, for hosiery dyeing. Mfd. by The American Laundry Machinery Co., Cincinnati, O.

WOOLEN RAW STOCK DYEING—All-Monel Metal cages for dyeing woolen raw stock. Manufactured by Hussong-Walker-Davis Company, Philadelphia, Pa.



SKEIN DYEING—Installation of a battery of the Smith-Drum Monel Metal skein dyeing machines. Monel Metal for the tank, splash back, guard, yarn tubes and yarn rotating members is standard construction. Built by Smith, Drum & Company, Philadelphia, Pa.

LEADING dyehouses standardize on Monel Metal equipment; for cotton, silks, rayons, woolen raw stock and woolen carpet yarn—no matter what method is followed: raw stock, package, skein, piece goods or hosiery dyeing; and in such processes as direct dyeing, vat colors, sulphur colors, basic shades used in acid baths and acid colors; or for peroxide bleaching or stripping with hydrosulphite solutions.

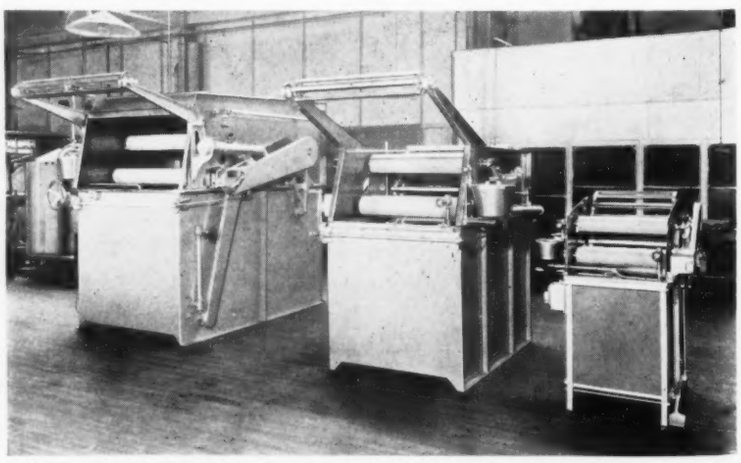
Monel Metal absorbs no liquors and is readily and rapidly cleaned. It is rust-proof, resistant to corrosion and free from splinters and rough surfaces.

For piece goods dyeing equipment and for peroxide bleaching kiers, where large tanks are required, Nickel-Clad Steel is an economical and highly satisfactory material of construction.

Send for consolidated volume of "Dyed in the Truth"—contains the experience of 68 dye plant operators using Monel Metal equipment for practically every type of dyeing and bleaching. Also available on request: *"The Use of Monel Metal and Nickel in Processing Cotton, Silk and Rayon,"* and *"Modernizing the Dyehouse."* Address

THE INTERNATIONAL NICKEL COMPANY, INC.
67 WALL STREET NEW YORK, N. Y.

Monel Metal is a registered trade-mark applied to an alloy containing approximately two-thirds Nickel and one-third copper. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.



PIECE GOODS DYEING—Dyeing machinery manufactured by the Grand Rapids Textile Machinery Company, Grand Rapids, Michigan. The two larger units (10-string and 4-string) have tanks made of Nickel-Clad Steel Plate. The super-structure and parts, well baffle and circulator, also the steam pipe and syphon jet are all of Monel Metal. The smallest unit (1-string) for sample dyeing is constructed so that all parts except the rubber scouring rolls, which come in contact with the liquor and fabric are made of Monel Metal. For more details of construction see Grand Rapids Catalog.

Cotton

VARIES IN QUALITY FROM YEAR TO YEAR BUT YOUR MERCHANDISE NEED NOT BE GREATLY AFFECTED

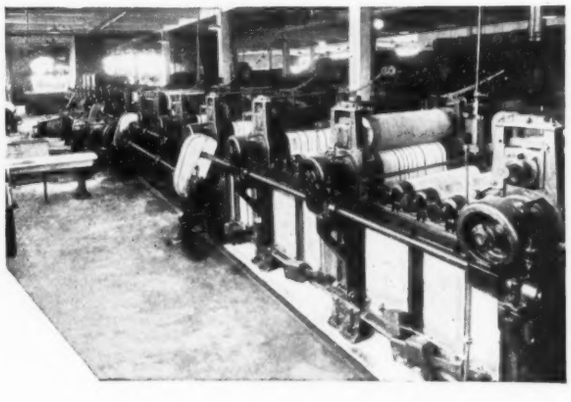
There is surprising variation in raw cotton of a given grade—particularly between annual crops. The fibre in one crop may be brittle, in another crop there may be no brittleness. Other subtle changes, noticed by those of us working closely with cotton, might be expected to alter the quality of your cotton merchandise.

When you use Dixie durene, controlled manufacture helps protect you against these changes. For example, controlled mercerization corrects brittleness by chemically rebuilding the collapsed cotton fibre cells, allowing exactly the proper shrinkage, then slowly air-drying to keep Dixie durene soft and pliant.

With Dixie durene you need not worry about raw cotton conditions. You can set your quality standard high, and count on Dixie's controlled manufacture to help keep it high.

DIXIE MERCERIZING COMPANY

CHATTANOOGA, TENNESSEE



A Dixie mercerizing machine—ball bearing rollers for accurate shrinkage control.

Dixie Durene . . A Product of Controlled Manufacture

FOR RAYON—FOR SILK

ATWOOD

Oilless Machines produce clean yarn

IF you don't use oil you can't get oil spots. Atwood Winders, Twisters and Redraws are now oilless. They require no oiling AT ANY POINT for months at a time. Built to suit your individual requirements.

NRA MEMBER U.S. WE DO OUR PART

THE ATWOOD MACHINE COMPANY, STONINGTON, CONN., U. S. A.

Sales Offices: New York Wilkes Barre, Pa. Stonington, Conn. Charlotte, N. C. Los Angeles, Cal.

ATWOOD MACHINES PRODUCE THE BULK OF AMERICA'S SILK AND RAYON YARNS

586

Metallized cellulose film has advantages in

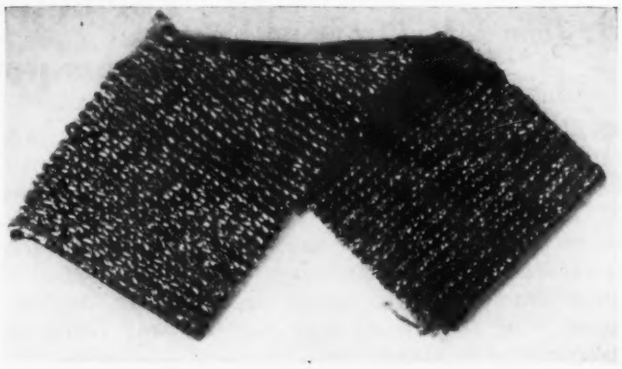
Metal-Decorated Textiles

FITTING in appropriately with the current trend toward glamor in women's fashions and decorative textiles, the announcement by the E. I. du Pont de Nemours & Co., Inc., of the development of a new metallized cellulose product, is regarded as of unusual significance. Spokesmen for the Fabrikoid Division of the du Pont company, which division developed the material, point out that it has the natural gleam of metal without some of the disadvantages of true metal in textile applications.

The material is made by depositing metallic particles on a sheet of No. 300 cellulose film. It is more lustrous on the uncoated side than on the other. It may be laminated to textiles or to paper in sheet form, or it may be laminated to itself (metal to metal) for the purpose of making it lustrous on both sides, for adding strength, and for protecting the metal against tarnish. From this latter state a kind of lamé yarn is made by slitting the sheets into narrow strips. This yarn has already proved its adaptability for knitting, as is shown in an accompanying illustration, and weaving experiments are being made with it. The material so far turned out is of silver color, but gold will soon be available. The slit yarns, which are usually $\frac{1}{64}$ of an inch wide, but which will be made in other widths later, are manufactured by the Walser Mfg. Co., Clifton, N. J.

The sheet form of metallized cellulose is adaptable to various uses. As previously stated, it may be laminated on fabric or paper, and will take decoration in numerous forms, such as printing, lithographing, silk screen stenciling, embossing, corrugating, creping, shredding, folding and gumming.

A strong merchandising appeal in the new product,



according to du Pont spokesmen, is the fact that it will sell substantially below true metal yarns. Also they say, it will not tarnish or oxidize, thus solving a problem which has always been a difficulty in promotion of metallic textiles, and it has greater flexibility and "drape" than the true metals. Stability of price is cited as another advantage of the metallized film. In shredded form, cut from single-thickness sheets, it offers opportunity for mixture with other fibers in spinning.

While it is too soon to gage the textile industry's reaction to the innovation, there seems to be little doubt as to its potentialities. With fashion sponsoring glitter in women's wear and in upholstery and drapery fabrics to a degree seldom if ever before known, there appears to be real merchandising promise ahead. The material is not to be confused with slit or shredded Cellophane, which has found a multitude of uses in formal and informal fabrics, as demonstrated among the collection of new French fabrics described on pp. 87 to 89 of the November issue of TEXTILE WORLD.

French metal novelties included in

Princess Marina's Trousseau

OUR FRENCH CORRESPONDENT sends several new French fabrics which feature metal effects. In the group above, the first fabric is "Filon d'Or" (silk with metal ribbed surface) which, it is stated, is used in the trousseau of Princess Marina, recently married to the Duke of Kent, brother of the Prince of Wales. A new color has been created for the Princess—it is a gleaming reddish salmon. The center fabric is "Pilar," a rayon and metal fabric with deep and shaggy pile which might well be called a fur lamé. The third fabric is a velvet lamé of rayon, silk and metal called "Amour d'Or." In Princess Marina's trousseau was a hand-woven gold and silver brocade called "Venetian Damask," the pattern being adapted from Venetian 16th Century documents. Fabrics by Chatillon-Mouly-Roussel.

Stretch-Out Calculations

For determining proper number of looms per weaver and expected efficiency

By John J. McElroy

◆ *The much-discussed stretch-out problem was given the spotlight at the sessions of both the textile division and the management division of the American Society of Mechanical Engineers during the society's annual meeting in New York the week of Dec. 3. The meeting is reported in the Engineering Digest of this issue, but an abstract of the important paper by Mr. McElroy, member of the society and New England textile-mill executive, is printed below.*

ALBERT PALMER, of Crompton & Knowles Loom Works, has covered the subject of weave-room testing in several excellent papers,* and a similar system of analysis has been used in collecting most of the data on which this paper is based. As I can add very little to Mr. Palmer's methods, we may simplify the matter by skipping the details of actual test study and start with the statement that the following conclusions were reached:

In a well-laid-out weave room with automatic looms operating on a specialized system running substantially the same kind of grey goods, a first-class, average weaver could be defined as one who can handle, without fatigue, 66 stops of an average value of .5 min. in 60 min. This is further analyzed as follows:

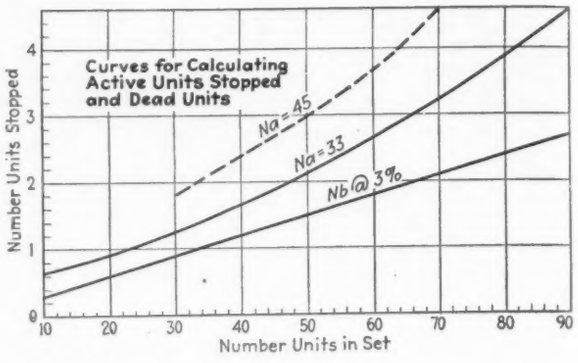
	Per Cent	Min. in Hr.
Stop correction	55	33
Inspection and walking	35	21
Idle time (for personal relaxation)	10	6

The important factors are the number of stops per hour and the average minutes for each stop. The stops per hour are determined at the loom, and the stop value [minutes required to correct stop] is likewise based on the average ability of an average first-class operator. The stop value is the average of filling, warp, and mechanical stops, and varies with the type of cloth, general conditions, quality of warping, and mechanical perfection of the loom.

For a practical formula the length of patrol need not be considered for circuits 450 ft. and less. Table A shows the average length of circuits of various combinations of looms. It also analyzes to some degree the time spent in walking and inspection.

There might arise some question as to the ability of the grade A weaver to do the work as indicated on this table. I wish to explain that he must be a first-class man, paid adequately, and operating efficient looms equipped with pick counters under first-class conditions.

Any experienced tester knows that a fast grade-A weaver will show on the same set more stops per hour than a slow grade-A weaver. The conclusion, if taken at its face value, would indicate a poorer-running job with the fast operator. Therefore, it is obvious that the general measure of loom performance (stops per loom hour) is influenced considerably by the operator's ability.



It is well to remember that, irrespective of the grade of the operator, the stop value is always the same for the machine and the man. This is a very important factor that must be considered in developing a job formula.

With respect to the formulas offered in this paper, reference can be made to the following table for the meanings of the symbols:

W = Number of stops operator can handle per hour.
$S.V.$ = Average stop value.
T = Minutes in hour allowed for attention time.
Nt = Total units in job.
Na = Active units stopped waiting attention.
Nb = Dead units, stopped for cleaning, fixing, changes, etc.
$S.L.$ = Stops per unit hour.
E = Efficiency.
A = Attention time per unit = $S.V. \times S.L.$
M = Running time = $60 - (S.V. \times S.L.)$

1. The first step is to determine W, the number of stops the operator can handle per hour.

$$(1)\ W = \frac{T}{S.V.} \left(= \frac{33}{S.V.} \text{ for grey goods, automatic weaving} \right)$$

The value T is determined by time-study tests for the department. For example, plain-goods automatic looms are standardized at 33 min. as the average time that the weaver is to spend in each hour correcting faults. On spoolers it may be 45 to 50 min., depending on the conditions.

The stop value, $S.V.$, is determined by actual tests of different operators, averaged to get a fair value. A totalizing stop watch and a hand counter used in a series of short tests will give an accurate answer. Tests may be any length of time, taken at intervals. The total time divided by the total stops gives $S.V.$

2. The second part is to determine Nt, the number of units the operator may handle.

$$(2)\ Nt = \frac{W}{S.L.} = \frac{\frac{T}{S.V.}}{S.L.} \left(= \frac{\frac{33}{S.V.}}{S.L.} \text{ for grey-goods weaving} \right)$$

3. The last answer desired is the expected efficiency of the job. Here we must consider the probability of active units being stopped waiting operators' attention and its relation to attention time per unit. As the job increases in size, the probable units waiting increases and the attention per unit decreases. Following is a formula for this:

$$(3)\ E = 1.00 - \frac{Nb + Na}{Nt - Nb - Na}$$

*Including the following articles in TEXTILE WORLD: "Multiple System of Loom Operation," Feb. 2, 1929; "Weaver-Loom Balance," Mar. 16, 1929; "Yardsticks of Performance," April 11 and 18, 1931; and "When Loom Builder Visits Weave Shed," June 6, 1931.

TABLE A—TYPICAL ELEMENT FACTORS IN FINE GREY WEAVING
Automatic Looms. Ideal Conditions

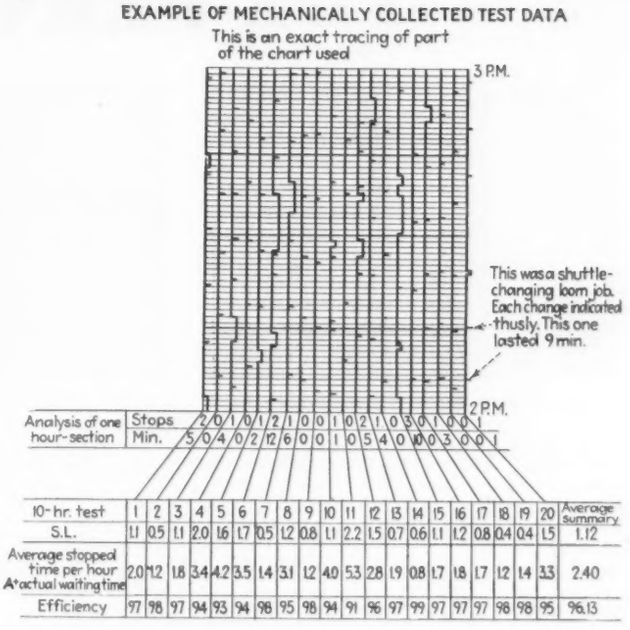
1	2	3	4	5	6	7	8	9	10	11	12	13
No. Looms in Set *Nt*	Number Alleys	Stops Per Loom Hour *S.L.*	Average Stop Value *S.V.*	Weaver's Constant *W.*	Patrol Distance (Ft.)	Min. to Cover Patrol Walking	Rounds Per Hour	Average Stop Frequency (Min.)	Per Cent Loss Unit *A./M.*	Probable Units Waiting *Na*	Units Dead *Nb*	Expected Efficiency *E*
12	1	3.66	.75	44	60	0.66	....	1.36	.0479	0.695	0.36	91.20
24	1	2.12	.65	51	120	1.33	....	1.17	.0235	1.04	0.70	92.30
30	1	2.00	.55	60	150	1.66	12	1.00	.0186	1.25	0.90	92.54
48	2	1.54	.45	73.5	240	2.56	8	0.81	.0116	2.02	1.45	92.37
60	2	1.38	.40	83	300	3.33	6	0.72	.0093	2.63	1.80	92.05
75	2	1.18	.375	88.5	375	4.15	5	0.68	.0074	3.55	2.25	91.62
90	3	1.05	.35	95	450	5.00	4	0.63	.0062	4.60	2.70	91.16

Notes: The average weaver walks at the rate of 88 ft. per min., and column 7 is figured for 21 min. walking time in each hour. In column 8 the rounds are not figured for few looms as the weaver does not patrol on regular schedule. The values in columns 3 and 4 will not apply to carded heavy prints, but the *A* values will be the same. To illustrate, a 90-loom print job might have the following values: *S.L.* = 0.60, *S.V.* = 0.61.

TABLE B—EXAMPLE OF DETAIL MAKE UP OF *Nb* VALUE

	Low	Average	High
Cleaning as per schedule	.5	.75	1.0
Fixing and overhauling	.5	.75	.8
Repairs (major)	.3	.45	.6
Pick-outs, etc	.3	.45	.6
Warp changes	.4	.60	1.0
Total	2.0	3.00	4.0

EXAMPLE OF MECHANICALLY COLLECTED TEST DATA


This is an exact tracing of part of the chart used
3 P.M.
This was a shuttle-changing loom job. Each change indicated thusly. This one lasted 9 min.
2 P.M.

Analysis of one hour-section																					
	Stops	2	0	1	0	1	2	1	0	0	1	0	2	1	0	3	0	1	0	0	1
	Min.	5	0	4	0	2	12	6	0	0	1	0	5	4	0	10	0	3	0	0	1

10-hr. test	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Average summary
S.L.	1.1	0.5	1.1	2.0	1.6	1.7	0.5	1.2	0.8	1.1	2.2	1.5	0.7	0.6	1.1	1.2	0.8	0.4	0.4	1.5	1.12
Average stopped time per hour A=actual waiting time	2.0	1.2	1.8	3.4	4.2	3.5	1.4	3.1	1.2	4.0	5.3	2.8	1.9	0.8	1.7	1.8	1.7	1.2	1.4	3.3	2.40
Efficiency	97	98	97	94	93	94	98	95	98	94	91	96	97	99	97	97	97	98	98	95	96.13

NOTES: All looms operated at 170 picks, except No. 3, which ran at 212, and Nos. 17, 18, 19, and 20, which ran at 185. *S.V.* = 0.4 min., representing 24% of total time looms were stopped. *Na* = (2.4 min. x 60 looms) ÷ 60 min. = 2.4 looms. The average value of *S.L.* is better than standard, reducing *Na*. [Decimals have been dropped in the horizontal efficiency line to save space.]

On a weaving job, *Nb* must be considered, whereas on a spooler job its value is zero. Value *Na* is a problem in probability, and the curve shown has been constructed from the mean of three answers:

(1) observation spot tests for various size groups averaged over considerable time, (2) mechanically recorded tests, and (3) working back through the formula 3 using known values for *E* and *Nb*. The unit being worked on by the operator is always included in our value of *Na*.

If your looms are equipped with pick counters, you should get an accurate *E* answer for any job, and *Nb* can be determined by simple observation quite accurately. Therefore, each mill may check its value of *Na* without going into the difficult task of getting an answer from the observed-test method, which is not only costly, but influenced to some extent by the psychology of the operators under test.

The rearranged formula would be as follows:

$$Na = \frac{Nt\,(1-E) - Nb\,(2-E)}{2-E}$$

The value of *Na* will vary a little in different weaving mills, being affected by the particular allowance for attention time. I feel that the error that may be in our idea of the curve is relatively small, and the curve is satisfactory for practical use.

In collecting test data on this subject we should keep in mind that causes of faults are of no interest, as all we wish to measure is actual operator's input, and resulting machine output. For this type of work we have found an electrically operated chart recorder a valuable instrument. An example of mechanically collected test data is given in an accompanying illustration. A twenty-pen electric Esterline-Angus recorder was located outside the weave room and connected to twenty looms of a 60-unit set. Only the overseer knew the instrument was operating.

The *Nb* value is considered a constant percentage and can be determined quite accurately by observation test in each mill. Table B indicates how it may vary in different mills or on various kinds of goods. Looms stopped for various fixed operations is expressed in per cent. The curve *Nb* is figured at a 3% average.

Returning again to value *Na*, the probability of units stopped waiting attention is governed by the relation of the following variable factors:

1. The number of machines in the set.
2. (*a*) The attention time per unit hour.
   (*b*) The walking and inspection time per unit hour.
   (*c*) The idle or personal time per unit hour.

For example, on a 50-loom weaving job 55% is allowed for *a*, 35% for *b*, and 10% for *c*. On a 50-spindle spooling job 75% is allowed for *a*, 15% for *b*, and 10% for *c*. A curve *Na* at 45% is shown to indicate the difference, as we found it, on the probability of units stopped between a loom job and the much more condensed spooler task.

A formula to determine the value of *Na* is certainly desirable. It is, however, a problem for the expert mathematician, and I believe we shall have to use the empirical answer until a practical formula is available. [At the management meeting Wilmer R. Wright, of Stevenson, Jordan & Harrison, New York, proposed a formula for this purpose.]

The above two cases represent the extremes usually found in job characteristics. Time will not permit further discussion of the application of this general approach to other jobs in the mill, but as a rule they all may be handled in a similar way, and result in good efficient tasks with little danger of stretching out the job excessively.

THE PERSONAL PAGE

Frank H. Douglas

Howard Coffin

Hiram S. Rivitz

H. P. Kendall

W. H. Carrier

Horace B. Cheney

Col. Frank D. Douglas of Oklahoma City, has been appointed a member of the National Textile Labor Relations Board, succeeding **Dr. James A. Mullenbach**, retired. Col. Douglas will also take over much of the executive work previously done by Dr. Squires who resigned in the latter part of last month. At the same time, N. L. Price, who had served as executive assistant to Dr. Benjamin Squires, resigned and was succeeded by **Samuel L. McCurg** of Charlotte, N. C., who will have the title of executive assistant and counsel.

Howard E. Coffin, chairman of the board of Southeastern Cottons, Inc., and **Hiram S. Rivitz,** president of Industrial Rayon Corp., Cleveland, O., are, as noted in these columns last month, directors of the Committee for Economic Recovery, formed as a medium through which the help of business may be passed to the administration at Washington. Mr. Coffin has also been in the news lately due to his election as chairman of the newly-formed Southeastern Development Board.

H. P. Kendall, president of Kendall Co., Boston, has been elected chairman of the Business Advisory and Planning Council for the Dept. of Commerce, Washington, D. C., succeeding **S. Clay Williams.**

Willis H. Carrier, president of Carrier Engineering Corp., has been awarded the A.S.M.E. medal for 1934 for his work in air conditioning. The medal was established by the society in 1920 to be awarded annually for distinguished service in engineering and science.

Horace B. Cheney, vice-president of Cheney Bros., South Manchester, Conn., has been awarded one of the two Henry L. Gantt gold medals of the American Management Association "for distinguished achievement in industrial management as a service to the community."

J. K. Milliken, president, Mt. Hope Finishing Co., North Dighton, Mass., was elected to the executive committee of the Home Market Club at its annual meeting in Boston, Nov. 21. Numerous textile men were reelected to various offices. Those elected for the first time to the board of directors include: **W. S. Nutter,** Goodall Worsted Co.; **F. H. Deknatel,** Bigelow-Sanford Carpet Co.; **W. F. Staples,** Ponemah Mills; **Gordon Harrower,** Wauregan-Quinebaug Co.; **W. T. Dowling,** Stevens Linen Works.

P. J. Wood, manager of Oriental Division, and **Emile P. Landru,** manager of Apex Division, of Apex-Oriental Corp., Paterson, N. J., have resigned.

J. A. Lichty, president and superintendent, Lake City Hosiery Mill, Marion, N. C., has resigned and will return to his former home in York, Pa.

Avah Rydstrom, manager, Boston office, Cone Export & Commission Co., New York, N. Y., has been elected vice-president of the company.

Walter MacGlashan, mill agent for knitted underwear mills for 37 years, and at present representing the Faith Knitting Mills, Averill Park, N. Y., and the Vogue Knitting Co., Womelsdorf, Pa., will retire Dec. 31.

John Killars, Jr., formerly general manager, has been elected treasurer and a director of Judson Mills, Greenville, S. C., succeeding **W. E. Winchester.**

William H. Entwistle has been elected president of Pee Dee Mfg. Co., Rockingham, N. C., succeeding **I. B. Covington.** Other officers are: executive vice-president, **I. B. Covington;** vice president, **George S. Steele;** secretary-treasurer, **Horace Steadman.**

Frank E. Arnzen has replaced **Jefferson Borden, Jr.,** as vice-president of Fall River Bleachery.

S. Chase Coale has been elected president of American Hosiery Co., New Britain, Conn. Other officers elected are: secretary-treasurer, **L. H. Taylor;** vice-presidents, **R. C. Lyman** and **R. W. Whitman.**

Percy Ainsworth plans an extended vacation upon the completion of his duties as general manager of Hockanum Mills Co., Rockville, Conn.

Allyn B. McIntire, vice-president of Pepperell Mfg. Co., has been reelected president of the Association of National Advertisers. He is only the second person to succeed himself in this office.

Samuel N. Clark succeeds the late **W. C. Hill** as president of Fountain Cotton Mills, Tarboro, N. C.

Robert L. Turnbull has become associated with the Wanskuck Co., Providence, R. I. He has been with Dewey, Gould & Co., wool dealers of Boston, for over 30 years and a partner in that firm since 1919.

Philip Peeler has succeeded **Leonard Aitken** as general agent of the Lincoln Mills of Alabama, Huntsville, Ala. Mr. Aitken had been in charge of the mills for 20 years.

R. N. Aycock has become associated with **W. W. Glenn,** Lincolnton, N. C., in the management of the D. E. Rhyne Cotton Mills, the Glenn Mfg. Co., Thread Spinners, Inc., and the Melville Mills, Inc.

A. M. Durand, now managing director and general manager of the newly established Corona Velvets, Ltd., Drummondsville, Quebec, had previously organized and operated the velvet plant of the Crompton Co., West Warwick, R. I. He had in 1922 founded the Velvet Textile Corp. and served as treasurer and general manager till 1931.

E. W. Martin, formerly sales manager for Tubize Chatillon Corp., has joined the selling organization of the American Enka Corp., where he will have charge of yarn sales to the knitting trades, working with **Henry H. Anning,** general sales manager.

M. R. Jacobs has resigned his connection with Pope & Early, New York cloth brokers, and is associated with Pray, Day & Reilly in charge of their coarse-yarn gray goods department.

Walter T. Forbes has been appointed sales agent in Georgia, Alabama, Tennessee, Kentucky, Louisiana and Mississippi, for the Ranlo (N. C.) Mfg. Co.

Lex Willett, superintendent, Cannon Mills Co., Plant No. 11, Rockwell, N. C., has been transferred to a similar position with Plant No. 7, Salisbury, N. C. He was succeeded by **Troy Sherrill,** night superintendent at one of the Kannapolis plants, who in turn was succeeded by **Cecil Critz,** formerly head of night weaving. **Fred Wilson** will assist him.

Textile Calendar

National Knitwear Industrial Exposition, Grand Central Palace, New York, N. Y., Feb. 11-15, 1935.

National Knitted Outerwear Association, annual convention, New York, during week of Feb. 11-15, 1935.

National Federation of Textiles, Inc., successor to Silk Association of America, Annual Dinner, Waldorf-Astoria Hotel, New York, Feb. 28, 1935.

Southern Textile Exposition, Eleventh Annual Exhibit, Textile Hall, Greenville, S. C., Apr. 8 to 13, 1935.

American Society of Mechanical Engineers, Textile Division, meeting with Greenville Section, Greenville, S. C., Apr. 10, 1935.

Knitting Arts Exhibition, Commercial Museum, Philadelphia, Pa., Apr. 22-26, 1935.

National Cotton Week, May 6 to 11, 1935.

Walter J. Haggerty will become sales manager of Propper-McCallum Hosiery Co. on Jan. 1, resigning his position with Trojan Hosiery Mills, Inc.

Harry Prentice, Ponemah Mills, Taftville, Conn., was elected president of the Eastern Connecticut Mills Association at the annual meeting Nov. 8.

Henry F. Horn, formerly with Royal Weaving Co., Pawtucket, R. I., is now general overseer of weaving, slashing, drawing-in and cloth room in the recently established New Bedford (Mass.) Division of the Kendall Co.

Harry T. Viall, who has recently represented Manville-Jenckes Corp., Manville, R. I., in the sale of its cotton yarns in New England, has resigned that connection. His future plans have not been announced.

James Gossett, son of **B. B. Gossett,** president, Chadwick-Hoskins Co., Charlotte, N. C., is now affiliated with Turner Halsey Co., New York.

George Baxter has been made superintendent of Kenwood Woolen Mills, Inc., Corinna, Me., succeeding **Robert G. Blake,** resigned.

Obituary

Kenneth Moller, aged 50, president of Textile Patent & Process Co., Boston, died at his home in Milton, Mass., on Nov. 10. Mr. Moller was formerly assistant-treasurer of Jenckes Spinning Co., Pawtucket, was at one time vice-president of Lockwood, Greene & Co., and vice-president of Hunter Mfg. & Commission Co.

Owen Coogan, aged 53, president, Owen Coogan Corp., knit goods sales agents, and vice-president Appalachian Mills, Knoxville, Tenn., died Nov. 14, of apoplexy, in New York. Burial was at Pittsfield, Mass.

George D. Horst, aged 72, one of the founders of Nolde & Horst Co., Reading, Pa., and widely interested in textile and other lines, died Nov. 20. Coming from Germany in boyhood, Mr. Horst early formed a partnership with the late Jacob Nolde and built a large hosiery business from a modest beginning.

Charles A. Wimpfheimer, aged 76, president and treasurer of A. Wimpfheimer & Bro., Inc., New York, and of American Velvet Co., died at his home in Long Branch, N. J., on Nov. 26. He was active in philanthropy.

Harry Largman, aged 55 years, president and founder of the Largman, Gray Co., Philadelphia, died suddenly late in November. He entered the hosiery field from the neckwear business 15 years ago.

David Tousignant, aged 64, agent of Spofford Mills, Wilmington, N. C., died Nov. 25. He was previously attached to the industry in New England.

Olav Berg, aged 53, retired silk dyer and authority on tin-weighting, died at Paterson, N. J., Nov. 30. In 1912 he helped found the Imhoff-Berg Silk Dyeing Co.

Henry Russell Drowne, aged 74, who retired when the old wool goods firm of Lawrie, Man & Drowne was dissolved about 20 years ago, died in a fire which consumed his residence in New York on Nov. 15.

Gordon F. Bottomley, aged 45, member of Howland Croft Sons & Co., Camden, N. J., died Nov. 30.

Taxation Main Theme at N.C. Meeting

J. A. Long, president, Roxboro (N. C.) Cotton Mills, Roxboro, N. C., was elected president of the Cotton Manufacturers' Association of North Carolina, succeeding A. M. Fairley, vice-president, Waverly Mills, Inc., Laurinburg, N. C., at the 28th annual convention of the association held Nov. 22 and 23 at Pinehurst, N. C. Harvey W. Moore, secretary and treasurer, Brown Mfg. Co., Concord, N. C., was elected 1st vice-president, and Herman Cone, treasurer, Proximity Mfg. Co., Greensboro, N. C., was elected 2d vice-president. Hunter Marshall, Jr., Charlotte, N. C., and Carl R. Cunningham, Atlanta, Ga., were named secretary and traffic manager, respectively. In addition, the following were elected to the board of directors: Alex Howard, Concord; Arthur Wingate, Albemarle; Ellison A. Smythe, 3d, Balfour; Hardey White, Graham; A. G. Myers, Gastonia; and Thomas Webb, Concord.

A highlight of the business session was the report on taxation presented by Herman Cone, chairman of the committee on taxation. Emphasizing the alleged injustice of the processing tax to the manufacturer, he said in part:

"It is estimated that the cotton mills of this State paid, or were due to pay, to the Collector of Internal Revenue, Greensboro, N. C., approximately $37,500,000 (including 10 Federal, 6 State, 1 county and 3 city levies), or an average of about $2,500,000 per month on account of the processing tax from Aug. 1, 1933, when that tax became effective, to and including Oct. 31, 1934, or a period of 15 months.

A resolution regarding the processing tax asked that the tax be removed, and recommended that "rental or parity payments be made from the National Treasury." Further, it stated that "the processing tax greatly accentuates consumer resistance, and reduces cotton textile consumption, especially on the heavier fabrics. Therefore it weighs heaviest on the laboring classes and has reduced employment. It eventually acts as a boomerang to the farmer."

In the annual presidential address, Mr. Fairley discussed a wide range of subjects including labor problems, declaring in this connection that labor which has returned to work is fast learning that its best friend is the employer. "I cannot urge you too strongly," he stated, "to reemploy as fast as work becomes available all the men you can and only start eviction as a last resort."

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Russia to Spend Three Billions

According to a cable dispatch from Moscow to *Business Week*, the five Russian textile experts who left Moscow on Nov. 26 for a four-month inspection tour of England, Germany, and the United States, will have as one of their chief objectives the purchase of textile machinery with which to equip newly constructed Russian mills for production in 1935. "While Russia's heavy industry in the first 9 months of 1934 is reported as having increased production by 28% over last year," the dispatch states, "the machine building industry, which must supply the light industries with their working equipment, has not fulfilled its share of the Plan output. For 1935, the Plan calls for the production of numerous new machines for the textile industry. If they are not produced, newly constructed mills will be forced to remain idle.

"With Russia's increased gold output and favorable balance of trade, it is not reasonable to think that Soviet leaders will allow this to happen. Purchases abroad of the necessary machinery are expected. By the end of 1937, the cotton industry, according to the Plan, should have 9,100,000 spindles in operation, and 246,000 looms. This means an increase of 2,200,000 spindles and 52,000 looms. The investment in new construction and equipment in the textile industry will run to 3,600,000,000 gold rubles (about $3,000,000,000). A fair share of this will no doubt be produced at home."

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Richberg "Goes Over" at N.E.C. Meeting

Donald R. Richberg, executive director of the National Emergency Council and often referred to as "assistant president," stood before New England business executives and agriculturalists, 1,000 strong, and told his story. It was a good story; realistic and still moving. At its conclusion he was heartily applauded by a group which, a few months ago, had been severe in its criticism of the New Deal. The new attitude, which has been building up for a month or two, is best expressed by the resolution offered by Winthrop Carter, new council president, and accepted by those present, to the effect that, regardless of political beliefs, it is up to business to work for recovery within the framework which exists at present.

With Harry L. Hopkins, head of FERA, and Edwin S. Smith, member of the National Labor Relations Board, among its speakers, in addition to Mr. Richberg, the tenth annual New England Conference at Boston, Nov. 22 and 23, heard much of national affairs. Mr. Smith, formerly Commissioner of Labor and Industry in Massachusetts, addressing the industrial session, gave it as his opinion that "the progressive organization of labor seems an inevitable concomitant of our industrial system," and that one of the chief economic causes of Section 7 (a) was "the belief that an incentive to labor to organize would result in a strengthening of its bargaining power, hence an increase in the amount of income diverted for wages and an enhancement of consumer purchasing power." In reply to a question after his prepared address, Mr. Smith declared that it was reasonable that labor unions —through incorporation or some such means—be held accountable for their acts; but that this would come gradually as the rights of labor were consolidated.

QUESTIONS AND ANSWERS

Twist Setting

Technical Editor:
Can you give me any information as to method of determining when a a silk or rayon yarn has the twist properly set? Also I should like to know the correct temperature in steaming silk and rayons, as well as the length of time required with ordinary steaming equipment for, say, a 10-thread, 20/22-denier, 52-turn silk crepe and a 200-denier, 50-turn rayon crepe. If the temperature does not exceed 150° F., is there any danger of oversteaming? (8161)

The method generally used for determining when a silk or rayon yarn has been properly set is to take off from the yarn package possibly 4 to 6 ft. of the yarn and allow it to hang as a free loop. If the yarn is not properly set, the loop will twist up, depending upon the amount of life in the yarn. One important point to watch is the take-off of the yarn from the yarn package. If the yarn is drawn off over the end of a spool or the end of a cone, it often happens that life is regained in the yarn through the friction which occurs. To overcome this, the loose end of the thread should be taken in one hand and the spool or cone rolled over and over, allowing the yarn to unroll naturally from the package. In this way no twist will be placed in or taken out of the thread. Loops so formed should be satisfactory for testing twist setting.

The time necessary for setting a 10-thread, 52-turn silk crepe or a 20-denier, 50-turn rayon crepe, depends largely on the type of steaming equipment. In the new electrically controlled steam-box, a 2-hr. period should set such yarns completely, whereas in the ordinary type of steam-box, where low-pressure steam is shot into the box or is fed in through a water reservoir in the bottom, a continuous period of steaming to set such yarn might amount to several hours. However, this time could be shortened by using the shock system; i.e., by allowing the yarn to remain in the steam-box for 20 min., removing it to the normal temperature of the room for 10 min., and repeating these operations three or four times over possibly 1½ to 2 hr. A temperature of 150° F. should not affect silk or rayon yarn by over-steaming, especially if wet steam is used. In some cases, where the twists are rather complex, as in grenadines and cable twists, a temperature as high as 185° F. has been used over a period of 2 to 3 hr. without any detrimental effect. However, when ordinary steam-box methods are used, the general tendency is to carry out all steaming between temperatures of 160 and 170° F.

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Curl in Mohair Fabrics

Technical Editor:
We are inclosing a small sample of mohair pile fabric. Will you kindly advise us how the curl is put in this? (8164)

This effect is not produced in finishing, but the crimp or curl is put in the pile yarn before it is woven. The mohair yarn is passed between steam-heated, corrugated rollers, which mesh loosely with one another. This puts a wave in the yarn,

which curls after the pile is cut. The cloth is finished in practically the same manner as are regular plushes.

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Springy Finish Wanted

Technical Editor:
I am inclosing a sample of cotton cloth which has been finished and which I am trying to duplicate. You will notice the springy feel of this cloth, also the stiffness. I can get the springy effect, but seem to lose the stiffness. I have a 90-ft. jigging tenter, one of the latest made, on which these goods are processed. Will you kindly advise me how to obtain the proper finish. (8150)

In order to duplicate the springiness and stiffness of this fabric closely, we would make a sizing finish consisting of 60 lb. white dextrin, 25 lb. tapioca flour, 5 lb. high-grade gelatin, and 2 qt. 75% sulphonated castor oil. Paste the dextrin and tapioca flour with water for 15 to 20 min., bring the mixture to a boil, and boil until clear. Shut off the steam, add sufficient cold water to bring the temperature down to 160° F., and stir in the sulphonated castor oil.

While this is cooking, soak the gelatin in cold water for 20 min. to wet it out thoroughly and cause it to swell. Then add hot water, 160° F., to the gelatin and stir until it completely dissolves. Next strain this into the sizing solution already prepared, agitate, and run into the starch mangle. Run the goods down through the solution in the starch mangle, up through the nip of the roll, squeeze out the excess onto the dry cans, and dry. Allow the goods to cool, then run through the dewing machine onto the tenter frame, and finally finish the goods on a calender using one heated steel roll and a husk or fiber roll.

If this formula gives too stiff a finish, increase the quantity of sulphonated castor oil slightly.

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Circular Knit Design

Technical Editor:
I am operating on a 6-feed machine having 468 needles, with a 72 cut pattern wheel. According to my calculation, the pattern space will be 36 needles across, plus 2 down for every feed.
I wish to know the figure for the same wheel and the same number of needles for a figure space measuring 12 needles across, and also for one 18 needles across. (8105)

We factor the needles as follows: $468 \div 2 = 234$, $\div 2 = 117$, $\div 3 = 39$, $\div 3 = 13$; or $468 \div 3 = 156$, $\div 3 = 52$, $\div 2 = 26$, $\div 2 = 13$. Then the cylinder will divide by 2, 3, 4, 6, 9, 12, 13, 18, 26, 36, 39, etc. Dividing the cylinder of 468 needles by a 72 cut wheel gives 36 needles to a division. A lap of 36 needles gives $72 \div 36$, or 2 divisions to a wheel.

Three pattern wheels alternating with three plain feeds gives a design field 36 needles wide and six tuck courses high (3 wheels $\times$ 2 divisions each). In sections where both pattern-wheel and plain feeds knit, twelve knit courses would result. With six pattern wheels the height of the design field would still be six tuck courses. This is true because in pattern knitting on circular machines at least two feeds are required to complete one course (that is, to cast off stitches on all needles). In some designs three feeds are required.

Two design figures eighteen needles wide or three design figures twelve needles wide may be incorporated in a 36-needle division; and even though the figures are different, they must all be six tuck courses high and they would always repeat in straight vertical lines.

Herringbones of 9, 12, 18, or 36 needles in width may be made on the machine and with the wheels mentioned, but with six feeds only a 2x1 herringbone is possible.

As you do not state the number of needles per inch in the machine, it is difficult to estimate the wheel sizes—that is, whether they are too large or too small. However, for 12 needles $468 \div 60$ $(5 \times 12) = 7 + 48$. As that is unsatisfactory, we try $468 \div 84$ $(7 \times 12) = 5 + 48$. Another try: $468 \div 96$ $(8 \times 12) = 5 - 12$, giving a minus lap of one division and a design field 12 needles wide and 24 tuck courses high (3 wheels $\times$ 8 divisions each). For 18 needles $468 \div 90$ $(5 \times 18) = 5 + 18$, a plus lap of 18 needles giving a design field 18 needles wide and 15 tuck courses high (3 wheels $\times$ 5 divisions).

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Tentering Lace Curtains

Technical Editor:
We have a problem in connection with one of our tenter frames and should appreciate your opinion as to the proper method for its solution. We are manufacturing a heavy class of lace curtains, and these are generally run in double width on the frame, giving a total width of 108 in. These goods will stretch to almost any width, but we are interested only in finishing them to their woven width, or slightly less. When these curtains are on the frame, the centers, being slack, hang down. The centers hold back, especially if we attempt to regain lost length in the curtains by putting tension on the rolls on the entering end of the frame.
On the floor above the frame, we have a large roll which is set to rotate a little faster than do the pins on the tenter frame. On top of this there is a smaller roll which revolves merely by friction with the larger roll. The pull of this, however, will not bring the centers of the curtains forward sufficiently.
There has always been a loss of length in curtains finished on this frame which has no rolls at the exit end, as compared with our other tenter which has a series of steam-heated rolls at its exit end. On the frame described above, however, we do not desire a flattened or calendered appearance in the goods, but we are vitally interested in recovering the loss due to shrinkage in processing, or at least part of it, and finishing our products straight. (8165)

First, it would appear that some of your trouble may be starting in the scouring

QUESTIONS AND ANSWERS

or bleaching. Tension lengthwise should be reduced to the minimum in the wet treatment. At the same time, certain weaves or designs will shrink excessively when made absorbent by wet treatment.

In tentering, you may have to "snap" the goods out in width while wet at the two entering sections of the tenter. Sagging in the middle on wide goods is difficult to overcome when the fabric is elastic in nature and easily tentered to width. Too heavy blasting of hot air for drying may also cause trouble on the tenter.

Also, you might try a short run on trial of fabric split to single width, which is apparently about 54 in., to see whether or not the extreme width is causing the fabric to stretch under its own weight on the tenter. Copper whale-backs, in some cases, are essential under the cloth line to support wide fabrics which are inclined to stretch under their own weight.

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Shiners in Taffeta

Technical Editor:

We are inclosing a sample of rayon taffeta of the following construction: warp—100/60 Duponaise 45/2/1, 40½ in. in reed; filling—150/90, 6-turn Lolustra, 64 picks. As you will notice, there are many shiners. We have checked this defect from the loom to the coppers and winders. By changing cops in the shuttle, we found that the trouble was not caused by the shuttle tension. It is probably due to excessive humidity caused by weather conditions while copping, although we have eliminated as much tension as possible. Our winders, apparently, are running with uniform tension.

It seems to us that the proper way to eliminate this defect is to size in the skein before winding or copping, making the thread more resistant to stretch and strain. We shall appreciate your opinion as to the cause of this defect and suggestions for preventing it. If you agree with our thought of sizing before processing would you kindly give a formula, also throwsters equipped for this work? (8156)

Examination of the filling in the defective area discloses variations in the number of filaments in the yarn and in the amount of twist. Furthermore, it is evident that the filling yarn has been strained in some operation previous to weaving, as a magnifying glass shows numerous torn filaments. It would appear that you were on the road toward finding some of your trouble when you investigated your winding tensions.

There is no doubt that you would obtain more uniform results by employing a sizing solution. The method for sizing the skeins would depend somewhat on the equipment available. The most common method is to use the same type of equipment that a throwster uses in preparing silk or rayon crepe.

This consists of a soaking tank capable of holding about 40 gal. of water. The sizing solution should be prepared by taking 2 to 2½ lb. of some high-quality gelatin, mixing this with 1 gal. of cold water, and letting it soak for 20 min. This is then heated in a water-jacketed tank; in other words, by immersing the gelatin and water in a pail and placing this pail in a larger vessel filled with boiling water. It is stirred until the gelatin is completely dissolved, and is then strained into the soaking tank by pouring it through two or three layers of cheesecloth. The soaking bath is then heated to a temperature of 120° F.; and 6 oz. of a sulphonated coconut oil is thoroughly stirred into the soaking solution. The rayon skeins are removed from the book and tied in bundles of ten or a dozen skeins at a time to keep them from tangling.

The skeins should be tied very loosely, so as to permit uniform, even soaking under the tie-bands. The skeins are soaked in this solution for ½ hr., permitted to drain, hydro-extracted, and hung up to dry. During the drying operation, the skeins should be frequently turned, so that they will not dry stiffer in one part than in another; otherwise shiners will be produced which will show up more prominently than those you are now getting.

In winding and copping these skeins, you should be sure that the tension used is uniform at all times and that this tension does not exceed the elastic limit of the rayon.

A 40-gal. tank will soak approximately 75 to 80 lb. of rayon at a time.

Practically every commission throwster in the country is equipped to handle this work if he has the time and space available to hang the rayon skeins up and permit them to dry.

Drying at high temperatures in a dryer will increase production, but, in our opinion, will not produce as satisfactorily running rayon as air-drying or drying naturally in a room without artificial heat.

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Stockings Vary in Shade

Technical Editor:

The inclosed two stockings are from the same dye lot dyed by the two-bath method. You will note a variation in the shade, one stocking appearing different from the other. Will you please advise what in your opinion is the cause of this variation? (8108)

It is our opinion that this is not a dyeing problem. It is impossible to dye two similar stockings level and uniform two distinct shades in the same bath. We believe that the stockings were knit from different lots of silk having different affinities for certain of the dyes used in the formula.

In this case the only thing to do is to keep separate the gray stock knit from different lots of silk and add shading colors to the dyebath to produce the desired shade on a given lot. If the gray goods are the same tint and are already mixed, they will have to be dyed the two distinct shades as represented by the samples and separated as to colors by an inspector after boarding.

In taking samples for shade from the dyeing machine, the dyer could get a sample of both shades and adjust his formula to obtain compromise shades intermediate to the two samples inclosed. Probably each of these compromise shades will be close enough to pass. If only a strict match is passable, the match should be made on the majority stock in the dye lot, then the minority off shade should be culled out after boarding and put back in the dyeing machine for touching up.

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Filling Draws In

Technical Editor:

We are having trouble in our weave room, due to what is known in the trade as "jerked-in filling," during the weaving of our plaid ginghams, which can only be woven on multiple-box looms. This drawing in of threads out of turn causes endless delay, and we understand it does so wherever multiple-box looms are used. It can be combated to some extent by lone "curing" of filling bobbins; but even under the best precautions known here, it is troublesome. We shall appreciate any information you can give us concerning this problem. (8126)

On modern multiple-box looms equipment for this is located at top and bottom of the box housing. It is in the form of iron extensions so located that if a piece of flannel, burlap, or any rough-surfaced material be tied on the top and bottom of these projections the filling which extends from the box not in use will be held by the rough texture and will not sag in the path of the shuttle that is operating. Before these projections were adopted by the loom makers it was customary to tie a piece of cloth to extend from the reed cap to the front of the loom lay, but the new idea is much more effective. See November TEXTILE WORLD, pages 79 and 97.

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Super-Twist Warps

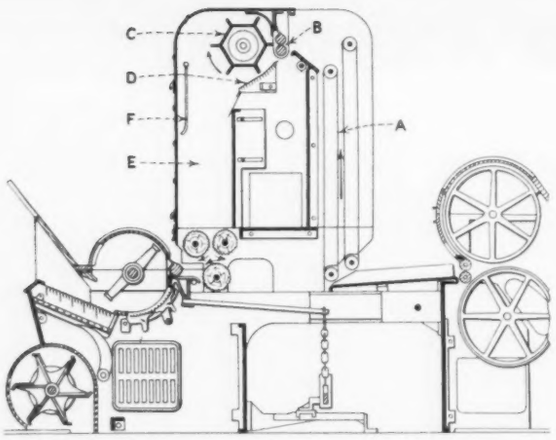
Technical Editor:

I have been much impressed by Goodyear's discovery of the benefits derived from the use of "super-twist" in tire cord. It seems possible to me that our industry has overlooked some factors of importance with regard to twist and that the same principles applied by Goodyear to tires might be applied to other products. Do you know of any tests on the application of this idea to warps? (8163)

Such a test was summarized in the February 1934, issue of the *Journal of the Textile Institute* as follows:

Increasing the twist in the warp yarn up to a twist constant of 5 brought about a considerable reduction in the number of end-breakages, in spite of the fact that the yarn strength as measured by the skein test was thereby reduced. Therefore, the authors concluded, skein strength cannot be regarded as a satisfactory criterion of weavability. The extension at break was increased to a small, but nevertheless important, extent. In consequence, the decrease in end-breakage was attributed, at least in part, to decreased warp tension during shedding and to less abrasion in the heddle eyes. Another factor which was felt to affect the end-breakage to a considerable extent was the tendency of increased twist to eliminate weaknesses due to local conditions of soft twist.

NEW MACHINERY



Cleaning and Blending Reserve

Among innovations in textile machinery recently announced by Saco-Lowell Shops, 147 Milk St., Boston, Mass., is a cleaning and blending reserve designed accurately to control the feed of the finisher section. It also serves as an intermediate feeder and tends to remove light dirt, which otherwise would pass on to the finished lap. At no point in the unit is a fan used, in order to avoid possibility of dirt after removal being drawn back into the cotton.

The accompanying diagram shows the application of the cleaning and blending reserve to a three-beater, one-process picker. As the sheet of cotton emerges from the intermediate screen section, vertical conveyor *A* carries it upward in a continuous sheet and delivers it to a pair of feed-rolls *B*, from which a six-arm beater *C* picks the sheet and distributes the loose cotton over a set of grid bars *D*. The stock then drops into the new reserve chamber *E* from which it is fed to the finisher beater.

The finisher section operates independently of the breaker section, although the feed of the breaker is controlled from the reserve chamber. A sensitive feeler *F*, connected to a Mercoid switch, starts and stops the breaker feed at predetermined points so that the cotton level in the reserve is kept within close limits in order to assure uniform delivery at the finisher section.

The breaker and finisher sections are synchronized by keeping deliveries from both sections in proper ratio, although the feed to each section may be regulated independently. Manufacturers assert that this "individual but synchronized control" makes possible extraordinary uniformity in yard-to-yard and lap-to-lap weights.

When properly balanced, the amount of cotton delivered by the breaker-section is said to be slightly in excess of the requirements of the finisher, which means that there is always stock in the reserve. In order to keep variations in yard-to-yard weights within a fraction of an ounce, manufacturers recommend that the breaker section be operated about 90% of the time.

The complete mechanism is driven from the breaker section in order to reduce the load on the evener-cone belt and make it more sensitive to the evener control. The auxiliary cone drive is eliminated. The device is available either with or without the automatic control-feeding system on the breaker section.

Advantages claimed for the new blending and cleaning reserve are as follows: (1) better cleaning of the cotton before it reaches the finisher, (2) a carefully regulated reserve supply, (3) reserve supply located close to evener feed rolls, (4) unusually accurate feeding of the finisher, (5) minimum load on cone drive, and (6) finisher-evener acting on the cotton as close to evener feed-rolls as is mechanically possible.

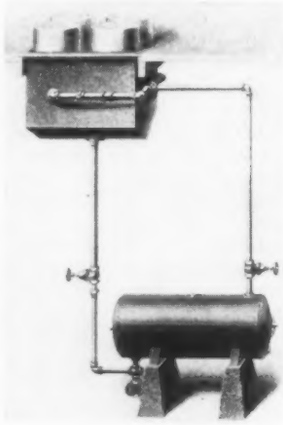
Boiler Water Meters

A meter to indicate and record boiler water level and feed-water flow has been developed by Bailey Meter Co., Cleveland, Ohio. The instrument consists of a standard fluid meter which indicates, records, and integrates feed-water flow, combined with a 12-in. indicator with dial scale for boiler water level. Both factors are recorded on the same chart for purposes of comparison. Manufacturers maintain that such a record is particularly valuable for use with small boilers, where a sudden increase or decrease in load may cause slugs of water to be carried over into the superheater or allow the tubes to be burned. Such records are also useful in determining the exact source of erratic or faulty boiler operation.

Bailey Meter Co. also announces a new steam-flow, air-flow boiler meter equipped with the direct-reading escapement-type integrator, air-flow mechanism, and steam-flow mechanism with interchangeable head-chambers. All factors are recorded on one 12-in. chart.

Caustic Dissolver

An automatic dissolver for solid caustic soda has been placed on the market by Lummus Co., 50 Church St., New York. The apparatus, designed to produce a solution of uniform strength in from 5 to 6 hr. by means of induced circulation, is put into operation simply by placing a block of fused caustic soda in the dissolver and adding the required amount of water. According to manufacturers, an outstanding advantage of the new dissolver is its safety to operator, there being no moving parts to require attention after charging. The device is made in one- to ten-drum sizes.



Facing Strip Machine

An industrial sewing machine, known as Style 51700 E, designed to fold and attach button-hole facing strips to knitted undergarments, is announced by the Union Special Machine Co., 400 North Franklin St., Chicago. The machine is designed to minimize need for manual control of tension (variation in tension will cause puckering or wrinkling) by automatic feeding. The feeding mechanism consists of a regular, flat feed-dog and two roller-feeds geared at the end to an idler-gear. In operation, the facing strip passes around the lower feed-roll and over the power-driven feed-dog. Rotation transmitted from the lower to the upper feed-roll serves as an auxiliary feed for the knitted body fabric. These synchronized movements are said to result in a gathering or take-up of the fabric much superior to hand-work of the average operator.

Reinforced Sheave

A reinforced steel sheave, known as Duro-Brace Texsteel Sheave, has been introduced by the Texrope division of Allis-Chalmers Mfg. Co., Milwaukee, Wis. In order to eliminate bending and throwing off true of outside walls under the strain of excessive overloads, the new sheave is reinforced with a convex steel plate designed to prevent distortion of the vulnerable areas. Welding at rim and web and interior grid-type construction, features of earlier models, are retained in the new sheave.

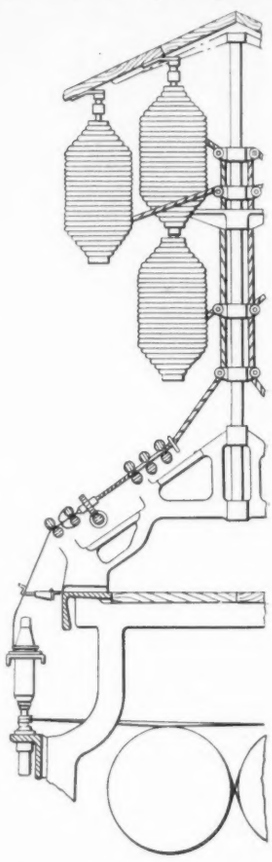
Oil for Light Machinery

A light oil, known as Telura L-34, designed for use where a low-viscosity and rust-prevention oil is needed and where temperatures and loads are not excessively high, is announced by Standard Oil Co. of New Jersey and associated Esso Marketers, 26 Broadway, New York. Advantages claimed for the new oil are that it does not become gummy or rancid, does not form acids, resists rust and the action of salt water and has high adhesive qualities which tend to increase lubrication and penetration. Manufacturers particularly recommend this oil for use with small motors, precision instruments, etc.

Spinning From Sliver

A compound-draft cotton spinning frame recently announced by the Casablancas High-Draft Co., Ltd., Manchester, England, is designed to spin yarn direct from drawing sliver. The machine closely resembles the compound-draft frame developed over three years ago by the Hartmann Textile Machine Works, Chemnitz, Germany, and described in the July 4, 1931, issue of TEXTILE WORLD, page 52. Both of these spinning frames draft on the same general principle as the new "Super-Draft" roving frame recently developed by Whitin Machine Works, Whitinsville, Mass., and described in the September, 1934, issue of TEXTILE WORLD, page 112.

These machines embody two sets of drafting rollers in series, with a revolving trumpet or tube between them for inserting a false twist in the roving. In the Super-Draft roving frame, however, the Casablancas long-draft aprons are a part of the first set of drafting rollers, while in the two spinning frames they are located in the second set and, as may be seen in the accompanying diagram, receive the roving direct from the twister head.



The purpose of the false twist is of course to keep the fibers in place and counteract the tendency of the roving to spread. In addition it may afford a certain amount of evening, since a slight draft is provided between the two sets of rollers and this is certain to take effect at the thicker or less-twisted parts of the roving.

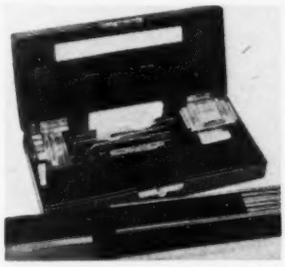
The intermediate draft on the Casablancas frame has a range of 1.1 to 2.5; the first set of rollers, from 5 to 15; and the second set, from 5 to 40. Thus the possible range of total

AND PROCESSES

drafts is from 27.5 to 1,500, although the practical range is expected to be from 50 to 400. It is reported that satisfactory 100s yarn has been spun from 33-grain sliver with a draft of 40.

Portable pH Tester

The Wulff portable pH colorimeter, designed to determine quickly and easily hydrogen-ion concentration in highly-colored,



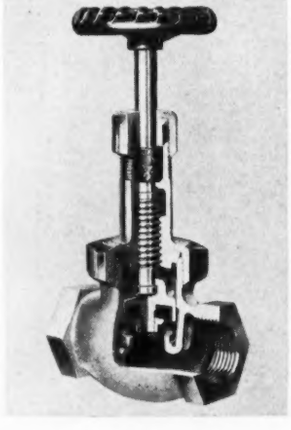
turbid, viscous, semi-solid or transparent solutions, is announced by Pfaltz & Bauer, Inc., 300 Pearl St., New York. The device, housed in a Bakelite molded case, is said to give readings accurate to 0.1 pH.

Circuit Breaker

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., announces a new De-ion circuit-breaker totally inclosed and mounted in the standard 600-amp. molded case. The breaker, known as AB-20 model, is similar to the 600-volt AB type, with the major exception that it has an interrupting capacity of 20,000 amp.

Globe and Angle Valves

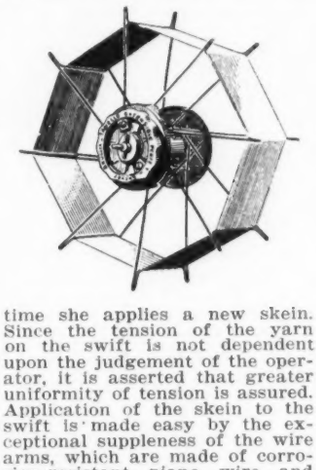
A new line of renewable, bronze, angle and globe valves has been placed on the market by Fairbanks Co., 393 Lafayette St., New York. Advantages claimed for the valves include: radial seat drawn to tight joint by union nut without sliding or scraping surface of seat; disk ring, composed of long-fiber asbestos and vulcanizing materials, serves in control of steam, hot and cold water; standard disk holder permits use of other makes of disk rings if desired; rolled bronze stem averaging 65,000 lb. tensile strength; at least five Acme threads at all times in contact with bonnet; union nut of heavy bronze; handwheel nut below surface to protect hand; all parts of globe and angle valves interchangeable.



Expanding Swifts

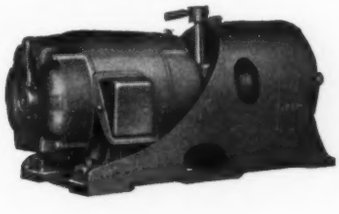
Four new expanding swifts are announced by the Brugger Winding Co., 41 East Gowen Ave., Philadelphia, the American company now supplying the various Brugger textile machines and devices formerly obtainable from Europe. One of the new swifts is a universal type applicable to all ordinary winding machines and suitable for holding skeins of cotton, wool, linen, thrown silk, and spun silk, as well as raw silk and rayon. Another is a small model especially designed for Lastex. The other two are intended for holding the cakes in the rayon-producer's plant.

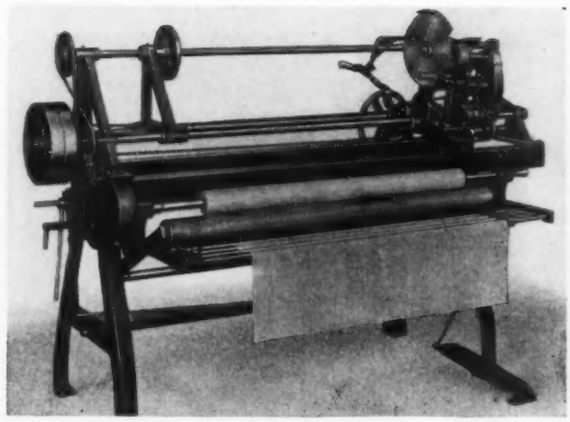
The universal swift, known as type BB and illustrated by the larger of the accompanying diagrams, is of all-metal construction and is adjustable to any circumference from 40 to 62 in. This is a wider range of adjustment than in the case of the original Brugger swifts, which were and are intended specifically for silk and rayon. As in the earlier models, however, the adjustment is locked rigidly in position by means of a wing nut; and once the desired circumference is set for the size of skein to be employed, the operator is not required to adjust the circumference each



time she applies a new skein. Since the tension of the yarn on the swift is not dependent upon the judgement of the operator, it is asserted that greater uniformity of tension is assured. Application of the skein to the swift is made easy by the exceptional suppleness of the wire arms, which are made of corrosion-resistant piano wire and have sufficient spring to hold the skein firmly in position after it is applied. The cross pieces of the arms are of waved design, and this construction is said to prevent congestion of the skeins without the use of strings. The eight arms help to approximate a perfect circle. The Lastex swift type L, is of similar construction but has a range of circumferences between 30 and 40 in.

The swifts are unusually light, although of durable construction; and this fact is said





to make possible low tensions and consequently low strains on the unwinding yarn, particularly at the start of the unwinding. Standardized tension straps and weights, the latter divided into units of 1 and 2 oz., are provided. Swifts are self-centering.

One of the two swifts for rayon cakes, type G, is for horizontal unwinding, as illustrated in the smaller of the accompanying diagrams. The large disk at the back is readily slipped off the swift when a new cake is to be applied. The other, type GV, is for vertical unwinding and is equipped with an automatic device designed to maintain a uniform tension regardless of irregularities in the pull on the yarn.

Rubberized Tapes

Jenkins Bros., 510 Main St., Bridgeport, Conn., announces a complete line of friction tapes and splicing compounds, known under the tradename Gold Seal. The friction tape is asserted to be strong, tacky, non-ravelling, free of pinholes, and to have excellent insulating qualities. The splicing compound is designed to fuse instantly into a solid mass affording complete insulation.

Eight-Speed Gear-Motor

A new eight-speed gear-motor, consisting of a four-speed motor and two-speed gear, is announced by Century Electric Co., St. Louis, Mo. This multi-speed gear-motor is designed for use where the ratio of speeds must be other than that obtained by a multi-speed induction motor. The device is of the all-motor type utilizing a standard, horizontal, ball-bearing motor connected to the gear with a resilient coupling designed to absorb shock. The motor may be wound for either one-, two- or three-phase power; the gears are of helical-cut type and are provided throughout with anti-friction bearings. Two-, four-, and six-speed gear motors are also available in this line, all of which can be supplied in open, totally inclosed, fan-cooled or splash-proof models.

Winding-Cutting Machine

Consolidated Sewing Machine & Supply Co., 115 Broadway, New York, announces a new combination winding and cutting machine for both straight and bias binding. The cloth is wound by passing one end through several friction rolls to the winding bar. After winding, the roll is transferred to the other side of the machine where a 10-in. knife is fitted with a precision-accurate automatic sharpening unit. The machine cuts all materials to 40 in. wide into 7-in. diameter rolls. Advantages claimed include its compact size, ability to give increased production, and economic operation.

Relay Telameter

Accurate recordings of temperature, pressure, liquid levels, etc., for distances up to ten miles are said to be possible with the new Telametering system developed by the Bailey Meter Co., Cleveland, Ohio. The receiving element is designed to record, with addition of one wire per record, as many as four factors on one 12-in. chart. The transmitting element consists primarily of a variable resistance unit operated by the metering device. Where necessary, an electric bulb is provided to keep frost off the resistance unit. For distances less than three miles, a two-wire connection is used; for greater distances, a three-wire connection. Power is derived from small dry-cell batteries producing such a low voltage that special filters, insulated transformer equipment, etc., are said to be unnecessary in order to eliminate interference.

Improved Humidity Controller

An improved indicating relative humidity controller, to be used in connection with unit-heaters, control-dampers, air-washers and other air-conditioning apparatus has been announced by Foxboro Co., Foxboro, Mass. The controller, known as the Rotax model, can be used anywhere electric current is available and is designed to maintain humidity by operating solenoid-valves and motor-valves on water, air or steam lines. Manufacturers assert that the controller is a new combination of two time-tested units—the membrane type recorder and the Rotax-type, self-

NEW MACHINERY & PROCESSES

cleaning contacts. The range of the controller is from 0 to 100% relative humidity between 10° F. and 120° F.

Acid-proof Cements

Two new cements, Vitric-10 and Pre-mixt, asserted to be acid-proof, steam-proof, water-proof, oil-proof, chemical-hardening and fast-setting, are announced by United States Stoneware Co., 50 Church St., New York. Vitric-10, recommended by manufacturers for quick repair work or patches, requires admixture of sodium silicate, and is said to take an initial set of approximately 10 min. Pre-mixt requires admixture of water only, and is said to take an initial set of approximately 1 hr., being ready for use within 24 to 36 hr. A feature of the latter cement is that it contains a lighter dehydrated sodium silicate, which effects a saving in freight charges.

Synthetic Asbestos

Announcement of a synthetic asbestos fiber said to have good heat insulating properties and suitable spinning qualities has been made by the American Synthetic Asbestos Corp., 233 West 26th St., New York. This new fiber was developed by Morris Grossman, who was formerly engaged in the asbestos business. According to Mr. Grossman, the exact composition of the synthetic product can be varied to meet particular requirements, thus widening its applications.

NEW PUBLICATIONS

Cotton; by R. J. Peake; revised and enlarged by H. P. Curtis, F.T.I.; Pitman Publishing Corp., New York; $1.75.

The fourth edition of this well-known book, just off the press, has been revised in every chapter, and many new illustrations have been added. Recent developments are covered, such as the invention of the Shirley analyzer for determining the amount of trash in raw cotton. Space is given to brief reviews of the history and purpose of the important British trade associations. Novelty yarns are touched upon, and a discourse on textile education by the principal of Burnley Municipal College is included.

In character the book is not changed. It is still an elementary description of cotton manufacturing and related activities expressed in mainly non-technical language. It begins with a history of textile manufacture; discusses modern spinning, weaving, and finishing; and carries on through the marketing of yarn and cloth as carried on in England. One of the final chapters is devoted to English labor unions.

Year Book of the American Association of Textile Chemists & Colorists; Howes Publishing Co., New York. Price $3.

The latest edition of this year book carries a record of the progress of the association during the year 1933. Research sub-committee reports brought up to date include those on fastness tests, rayon, shrinkage of textiles, textile analysis, mercerization, carbonization, printing pastes, etc. The tabulation of American dyes classified alphabetically and according to Schultz and Colour Index numbers has been revised. A new section—an index of textile chemical specialties — appears for the first time in this edition.

Edward Atkinson; The Biography of an American Liberal 1827-1905; by Harold Francis Williamson; Old Corner Book Store, Inc., Boston, Mass.

The span of Mr. Atkinson's life covered the most stirring years in the growth of cotton manufacture; his close association with that industry makes his biography practically a history of it. As treasurer and financial agent for several important cotton mills between 1850 and 1878, he became generally recognized as an authority upon the various phases of the industry. He was an active member of the New England Cotton Manufacturers' Association, wrote extensively upon subjects having to do with the production, handling and manufacture of cotton, and exerted a considerable influence especially during and immediately following the Civil War, over the governmental policy toward cotton growing and manufacturing.

But he was far more than a cotton manufacturer. Fire insurance executive, friend of the 'new' South, writer, tariff reformer, sound-money advocate, anti-imperialist, statistician, economist, dietician, inventor, speaker, are among the titles to which he could lay claim.

He was also an optimist. "This world is the best world that could have been made," he wrote. F. W. Taussig, in his introduction to the biography, says: "This optimism has had its day. We cannot face the future with any such untroubled hopefulness as that of the nineteenth century." But, certainly, his liberalism has not "had its day." It is more needed today than ever before.

Handbook of Chemistry; Edited by N. A. Lange; Handbook Publishers, Inc., Sandusky, Ohio. Price $6.

In compiling this book, Dr. Lange has endeavored to select material which will meet the needs of chemists who cannot command the unlimited time available to the research specialist or who lack the facilities of a large technical library. The vast majority of textile chemists fit very nicely into this classification, and this reference volume will supply them with a vast amount of data from fields other than those in which they have specialized. Much of this information should prove of real value in solving those problems which are outside of the ordinary daily routine, but which are frequently put up to the textile chemist. In many mills, for example, the chemist is called upon to give first aid treatment for burns, cuts, etc. The first section of the book outlines what to do in such cases. Then there is a table of hazardous chemicals, several sections on water softening and purification, a list of corrosion- and heat-resistant alloys, a discussion of the properties of materials of construction, and a description of various methods for determination of hydrogen ion concentration. These are but a few of the subjects not ordinarily covered in chemical handbooks. In addition, in the 1,265 pages of the volume are included data on physical constants of inorganic and organic compounds, density tables, and similar material which one expects to find in this type of work. Then, for good measure, is added a 247-page appendix of mathematical tables and formulas, compiled by Dr. R. S. Burington.

BUSINESS NEWS

Universal Winding Co., Boston, has placed W. S. Warren in charge of the northeastern New England section formerly under the direction of Harold Armitage. Mr. Warren has been covering western New England since 1922 and has also served the company at Charlotte, Atlanta, Utica and Providence.

Washington Textile Machinery Works, 50 Congress St., Boston is now sole selling agent for the automatic hand-weavers knotter manufactured by Cook & Co., Manchester, England.

Philadelphia Metal Drying Form Co., 8th and Columbia Ave., manufacturers of Adjustoe Forms, has moved operations to a new plant at 16th and Hunting Park Ave. which will considerably increase its productive capacity.

I. W. Lydall Needle Manufacturer, Manchester, Conn., has been organized for the production of needles and has leased space in the Carlyle Johnson plant.

Mathieson Alkali Works (Inc.) has started operations at its new $7,000,000 plant at Lake Charles, La.

Fifth Packaging Exposition, Palmer House, Chicago, March 5 to 8, 1935, will carry a display of the 1935 packaging awards competition. Judging will take place at 232 Madison Ave., New York, on Feb. 8, 1935. Entries close Feb. 4, 1935.

St. Regis Paper Co., New York, has appointed John Shuber as technical director. Mr. Shuber was formerly with Champion Fibre Co., Canton, N. C.

Rhyne, Moore & Thies, textile cost engineers, Charlotte, N. C., are distributing a 15-in. ruler on which are given tables for determining pounds per ring spindle, yards per loom week, etc.

Lawrence J. Norris, foreign sales manager of E. F. Houghton Co., Philadelphia, was elected president of the Foreign Traders Association at the annual meeting on Nov. 23 in Philadelphia. The annual dinner was attended by 400.

Veeder-Root, Inc., Hartford, Conn., is the subject of a special article in the November issue of *Connecticut Industry*, called a *Counting Devices Issue*. This publication has been devoting each number to one of the industries of that State. The Veeder-Root article outlines the history of the company and its predecessors, and surveys the many fields into which its products go. In connection with its service to the textile industry, it is noted that, since 1907 when the value of the first loom pick counter became apparent, the company has produced over 350,000 of such counters alone. Other developments are also mentioned, including hank counters for spinning and roving frames, yardage counters, and counters for recording the number of courses in the production of silk hosiery.

Progressive Textile Machine Co., Paterson, N. J., engineers and machinists, are moving their plant from 45 East 24th St. to larger quarters at 185 Fifth Ave., Paterson. Increase in business has compelled the expansion.

Wickwire-Spencer Steel Co., manufacturers of Wisco card clothing, has appointed Jack W. Horner sales representative covering Georgia, Alabama, Mississippi, Louisiana and Tennessee, with headquarters at Atlanta, Ga.

Peter Smith has established his own office at 192 Elwood Ave., Newark, N. J., for appraisals, liquidations, engineering counsel, surveys, disposal or acquisition of machinery and equipment, and transactions in buildings and real estate. Mr. Smith was recently associated with H. M. McCord, Inc., and previously had been mechanical engineer and purchasing agent with the Linen Thread Co. for 25 years. Among the important liquidations with which he has been associated are those of the F. A. Straus Trenton plant, the Mallinson and Peerless Plush plants in Paterson and the Post & Sheldon plants.

Link Belt Co., Chicago, announces that it has purchased all physical assets of **Bailey-Burriss** Mfg. Co., Atlanta, Ga., and will move all of its Atlanta equipment into that plant at once. I. H. Barbee, Philadelphia, will be transferred to Atlanta and put in charge of the southern plant, assisted by R. L. Lowden, J. R. Martin and J. O. Bailey. Incidentally, it is understood that Link Belt Co. has acquired manufacturing rights to the stoker produced by **Modern Coal Burner Co.**

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Business Literature

Shaftless Motors. Louis Allis Co., Milwaukee, Wis. Illustrated booklet describing advantages of shaftless motors, containing engineering data tables.

Finishing Machinery. James Hunter Machine Co., North Adams, Mass. Oct.-Nov. issue Hunter Counselor containing articles on measuring machine values.

Regulators Smoot Engineering Corp., 2240 Diversey Parkway, Logan Square Station, Chicago. Illustrated catalog describing regulators for pressure, flow, level and speed.

Synchronous-gear Motors. U.S. Electrical Mfg. Co., 1510 South Western Ave., Chicago. Bulletin describing construction of Synchrogear motor.

Weaving. Crompton & Knowles Loom Works, Worcester, Mass. Illustrated catalog comparing methods of weaving in backward countries with modern precision looms.

Fans. Propellair, Inc., Springfield, Ohio. Folder describing industrial uses of ventilating and exhausting fans.

Optical Instruments. Bausch & Lomb Optical Co., Rochester, N. Y. Three booklets describing, respectively, small quartz Littrow spectrograph, density comparator for rapid spectrographic quantitative analysis, and polarizing microscopes.

Insulation Testing. Sound Engineering Corp., 412 N. Leavitt St., Chicago. Illustrated bulletin describing instruments for testing efficiency of insulation.

Textile World Analyst

Activity continues up-swing but instances of price weakness are alarming

Textile Activity Index: Textile mill activity during the first ten months of 1934 was approximately 19% below the similar period of 1933, and 15% below the first nine months of the average year in the 1924-31 period, roughly assumed as normal. As we predicted last month, October figures reflected a sharp pick-up. We estimated that activity for that month would approximate that for October last year; final statistics showed only a 2% difference, in favor of October, 1933. . . . Although further figures are not available at this writing, we would estimate November activity as slightly ahead of October, and 10% ahead of November, 1933.

So far as the general textile outlook is concerned, nothing has occurred to alter the opinion expressed on this page last month, namely, that 1934 volume of activity will probably be approximately 18% below 1933, that 1935 volume should register, say, about 10% above 1934, and that 1935 should be a fair profit year for those concerns which have kept themselves in shape.

FROM an employment standpoint November was a good month in textiles. The snap-back from the strike-paralysis of September continued at a satisfactory rate. Mill activity was at a good level for November.

Unfortunately, from the price standpoint there were some woefully weak spots. Print cloths and carded yarns gave a particularly bad performance. It will be noted from Table I that the manufacturing margin on a group of representative print-cloths declined from an average of 17.4c. in October to 15.8c. in November. Worse still, there was a progressive drop in the latter month, to a low of 15.1c. in the last week. In carded yarns (Table II) the November average was 13.5c. against 14.6c. in October, while the margin in the last week of November was only 12.9c.

In both these groups, the price structure has collapsed to a level corresponding approximately to that of last June, when things were at their worst since the advent of the codes.

The pathetic part about this situation is that it has been unwarranted. In gray goods, for example, there was no statistical basis for the exaggerated price drop. A statement in the Nov. 28 market letter of Scheuer & Co. reflects, we believe, the true condition: "Buying opinion alone did not bring this price weakness about but rather selling bewilderment and lack of confidence forced the situation upon all buyers."

T. M. Marchant, head of the latter group, called public attention to the situation early this month. "With cotton costs rising and with labor and supply costs mounting as a result of the code," he said, "the problem of profitable manufacture of print cloths is a serious one. Most print cloth mills are today losing from 1c. to 3c. per lb." Consequently, he pointed out, "it is necessary for mills to take immediate steps to balance their production to demand, just as winter comes on when workers should be fully employed." Obviously, such balance is extremely important, but it should be added that a different psychology on prices must be adopted by the mills if similar crises are to be avoided.

Fortunately, at the end of November a better attitude appeared to be forthcoming. Nevertheless, the experience of last month furnishes food for considerable thought. The situation in this one division of the industry has been dwelt upon at some length here because it is symptomatic of much of the textile troubles of recent years. As indicated above, it goes beyond the field of economics as such, and enters the realm of psychology. Although an old story, it is renewed with alarming frequency.

Despite the fact that raw cotton prices advanced one point as reflected in TEXTILE WORLD's price index numbers, yarns and gray cloth declined five points each. Comparisons with a year ago are not pleasing. In November, 1933, raw cotton was 114, yarns 146 and gray cloth 132, whereas, while cotton is 20 points higher this November, the yarn index is actually down 10 points and gray cloth only up 6. Wool prices were fairly steady during the month. Raw silk showed an advance of about 15c per pound from the beginning to the end of November and the index number, representing an average, was one point up.

TABLE I. CARDED FABRIC MARGIN

Date	Margin in cents	Date	Margin in cents
July, 1931.....	15.3	October, 1933...	19.1
October, 1931..	13.3	November, 1933	17.7
January, 1932..	12.1	December, 1933	17.6
June, 1932.....	9.5	January, 1934..	18.4
July, 1932.....	9.1	February, 1934	19.1
August, 1932..	11.1	March, 1934...	18.3
September, 1932	13.0	April,1934.....	17.6
October, 1932..	12.6	May, 1934.....	15.8
November, 1932	10.7	June 1934.....	15.4
December, 1932	10.6	July, 1934.....	15.5
January, 1933..	10.4	August, 1934...	16.6
February, 1933.	10.1	September, 1934	18.6
March, 1933...	10.2	October, 1934..	17.4
April, 1933.....	11.4	November, 1934	15.8
May, 1933.....	15.6	Nov. 7...	16.2
June, 1933.....	20.6	Nov. 14...	16.2
July, 1933.....	23.4	Nov. 21...	15.7
August, 1933...	21.4	Nov. 28...	15.1
September, 1933	19.5		

TABLE II. CARDED YARN MARGIN

Date	Margin in cents	Date	Margin in cents
July, 1931.....	12.6	October, 1933...	20.0
October, 1931..	12.7	November, 1933	18.4
January, 1932..	10.9	December, 1933	18.5
June, 1932.....	9.9	January, 1934..	18.3
July, 1932.....	9.6	February, 1934	16.5
August, 1932...	9.7	March, 1934...	16.8
September,1932	12.8	April, 1934.....	15.9
October, 1932..	12.3	May, 1934.....	14.3
November,1932	11.3	June 1934.....	13.1
December, 1932	10.9	July, 1934.....	14.7
January, 1933..	10.2	August, 1934...	15.3
February, 1933.	9.4	September, 1934	15.6
March, 1933....	9.8	October 1934..	14.6
April, 1933.....	10.1	November, 1934	13.5
May, 1933	12.3	Nov. 7...	13.4
June, 1933.....	15.4	Nov. 14...	13.4
July, 1933	23.2	Nov. 21...	13.3
August 1933.	23.5	Nov. 28...	12.9
September, 1933	21.3		

Textile World's Price Index Numbers

Date	Cotton Index Numbers: Cotton	Yarns	Gray	Colored	Wool Index Numbers: Wool	Tops	Yarns	Cloth	Silk Index: Raw Silk
July 31, 1914..	100	100	100	100	100	100	100	100	100
1925, average..	187	188	189	176	223	229	224	233	143
1926, " ..	140	155	157	149	184	189	179	207	136
1927, " ..	140	153	159	153	181	184	187	195	119
1928, " ..	160	162	162	166	199	202	199	197	110
1929, " ..	153	144	145	167	176	179	192	211	108
1930, " ..	108	125	123	144	127	139	161	202	179
1931, " ..	68	93	92	119	99	112	134	161	54
1932, " ..	51	76	73	100	78	97	115	128	34
1933, " ..	84	116	110	113	116	135	139	181	35
Jan. 1934.....	124	151	139	144	153	180	181	222	32
Feb. 1934.....	132	148	146	144	153	180	181	222	34
Mar. 1934.....	132	149	145	142	152	178	180	209	31
Apr. 1934.....	128	144	141	141	147	176	180	209	30
May 1934.....	125	136	132	140	140	166	170	209	27
June 1934.....	132	136	132	140	138	160	169	209	26
July 1934.....	135	148	136	140	138	159	161	209	25
Aug. 1934.....	141	150	136	140	130	150	160	209	25
Sept. 1934.....	138	148	149	144	127	145	155	190	24
Oct. 1934.....	133	141	143	140	125	140	154	188	26
Nov. 1934.....	134	136	138	140	124	137	154	190	27

Note: All cotton indices since Aug. 1, 1933, include processing tax.

TEXTILE WORLD'S

Cotton Digest

THIS month, we yield to another writer. Commenting on the deplorable price structure in gray goods in November, Scheuer & Co. state:

"One of the underlying subtleties involved in this exhibition of bad selling of gray goods is the policy of not publishing statistics of production, sales, stocks, etc. Long since, producers withdrew the issuance of this information, subsequent to which they have been the sole recipients and interpreters of this data. The facts of production in the present instance overwhelmed them. They vied with one another to rid themselves of goods, subconsciously feeling that buyers being less well-informed as to the facts, could be made to carry the load. Obviously, such strategy has but transient value and ultimately brings its own unfavorable reactions. As a result, the whole industry pays a high cost for such a policy. The spirit of the times demands a reversal in this erroneous course of statistical secrecy. The procedure is unsound psychologically. Stability, if it is attainable, certainly can be brought closer if buyers as well as sellers know the facts. A sound market structure cannot be built if it lacks the balancing force of informed buyers as well as sellers."

We have expressed a similar thought previously in these columns. With all due recognition of the controversial factors involved in the question of statistical publicity, we still believe that this situation should be corrected.—*Editor.*

The Bankhead Act—To Be or Not To Be?

Cotton farmers, on Dec. 14, were given an opportunity to vote on the question, "Are you in favor of continuing the Bankhead Act for next year (June 1, 1935, to May 1, 1936)?" To aid the agrarians in their secret balloting, the Government had previously issued a pamphlet pointing out:

1. Irrespective of the decision on the Bankhead Act, the adjustment program with its rentals and parity payments will continue into the 1935-36 season.
2. The voluntary reduction program without the Act would result in 1,000,000 bales more than were it in effect.
3. If the Act is continued, surplus tax-exemption certificates can be used for the 1935-36 season.
4. If the Act is continued, total allotment will be determined by the Secretary of Agriculture, after investigation of available supply and probable market requirements.
5. If the Act is continued, farmers who have reduced acreage voluntarily will not be penalized in favor of those who have not.

At this writing, results of the balloting are unknown, although most observers are practically sure that the Act will be carried on into another year. Plans are to relieve the one or two-bale growers from Bankhead control.

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Sales Tax Favored By Oscar Johnson

Manufacturers, harassed with processing tax problems, beamed with pleasure when Oscar Johnson, AAA cotton pool manager, recently said:

"At present, under the flat 4.2c. lb. tax on cotton, the actual tax on work shirts, for instance, is higher than the tax on dress shirts. This could be remedied, in my opinion, by an *ad valorem* tax that would vary with the value of the particular type of cotton."

This statement, although expressed as the opinion of a private citizen, is interpreted by observers to mean that AAA officials are beginning to see more clearly the manufacturers' side of the much-discussed question. Any changes in the present set-up obviously will have to be effected by Congress after it convenes in January.

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Gray Goods Market

November opened weak with broadcloths rather steadier than print cloths. Both fabrics sold well in excess of production during the second week, 50,000,000 yd. print cloths being absorbed. Business continued fairly steady with mills reluctant to take orders beyond the end of the year —in anticipation of substantially higher prices in January. The market closed with fair activity and generally better feeling. Percales were advanced ½c.

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Cotton Yarn Market

Yarn markets opened irregular and unsettled, with some mills accepting new business at very low prices. Paralleling the gray goods market, some improvement was noted during the second week, largely due to increased number of small orders. Sales averaged about 4,500,000 lb. weekly during the first half of the month. The fact that customers are fully informed as to state of chronic over-production is partly to blame for slow fall markets. The market closed with a large accumulation of orders for the month (largest poundage since March, some say) but prices were unsatisfactory and involved a loss in many cases.

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American Printing Co. Liquidation Explained

"We must liquidate and find out where we are," declared Nathan Durfee, vice-president, American Printing Co., Fall River, Mass., in an interview published in the *Boston Post*. He blamed (1) high prices of finished cottons, (2) lack of markets, (3) processing tax and (4) cheap labor markets as contributing to the liquidation.

The entire battery of 42 printing machines ceased operating Nov. 23 and other operations are expected to taper off to a complete stop early in 1935. It is understood that there is a strong desire to reopen the plant if possible.

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Iselin-Jefferson Merges With Borden Mills

The Iselin-Jefferson Co., New York, has effected a merger of interest with Richard Borden Mfg. Co. The former will occupy premises at 90 Worth St., owned by M. C. D. Borden & Sons, Inc., and will add the gray goods produced in the Kingsport, Tenn., plant, to its extensive cotton goods lines. Howard S. Borden and Bertram H. Borden will retain offices in the building. Disposition of spindles and looms located at Fall River, Mass., has not been announced.

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International Cotton Export Agreement Proposed

A mutual agreement between cotton producing nations whereby exports would be limited by quota to "an amount which the cotton consuming countries can reasonably expect to absorb," was suggested by M. L. Wilson, assistant secretary of agriculture, at a meeting in Atlanta, Ga. The statement was branded by AAA as personal opinion.

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Would Dump Cotton Into Ocean

A group of German cotton importers, according to a Washington report, met last month with Secretary of Agriculture Wallace in an effort to work out an arrangement whereby Germany could barter certain industrial products for 500,000 bales of American cotton. Upon learning that the "industrial products" which the Germans wish to trade for cotton are an equivalent in *cotton textiles*, George P. Ray, vice-president, Riverside and Dan River Cotton Mills, Danville, Va., vehemently declared that rather than accept the terms of such an absurd proposal, it would be better for the Government to pay the farmers for the cotton and dump it into the ocean.

Print Cloth Group Talks Curtailment

The Print Cloth Group reported early this month that many mills may be forced to curtail production unless market conditions improve, according to a statement issued by T. M. Marchant, president, Victor-Monaghan Co., Greenville, S. C., chairman of the group. Quoting Mr. Marchant: "With these facts (increased cotton and manufacturing costs allegedly resulting in losses to mills of 1 to 3c. lb.) before us, and with consumers refusing to pay these increases in costs, it is necessary for mills to take immediate steps to balance their production to demand, just as winter comes on when workers should be fully employed." Since issuance of this statement, there has been considerable improvement in print cloth markets, which may or may not affect the proposed plans for curtailment.

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October Operations

Statistics of particular interest to cotton manufacturers, showing October operations and the raw material situation, were:

Spindle activity	97.1% capacity or 7,184,521,524 spindle hours
Cotton consumed	520,310 bales
Cotton exported (excluding linters)	615,593 bales
Cotton imported	11,911 bales
Cotton ginned (Nov. 21 report)	8,632,991 bales
Crop estimate as of Dec. 1	**9,731,000 bales**
Ginnings to Dec. 1	9,029,792 bales

September operations for comparison:

Spindle activity	54.3% capacity or 3,716,261,653 spindle hours
Cotton consumed	295,960 bales
Cotton exported (excluding linters)	479,861 bales
Cotton imported	7,870 bales
Cotton ginned prior Oct. 18	6,748,223 bales

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Associational Notes

Although rumored that the fall meeting of the South Carolina Cotton Manufacturers Association, held in Spartanburg, S. C., Nov. 7, was directly related to curtailment plans, no official action has resulted as yet.

A resolution declaring the processing tax to be a chief factor in decreased consumption of cotton yarns was adopted at a carded yarn manufacturers' meeting held Nov. 9 at Charlotte, N. C.

The Print Cloth Group, at its annual meeting on Nov. 16 at Spartanburg, S. C., reelected T. M. Marchant, president, Victor Monaghan Co., Greenville, S. C., as chairman. Other members of the executive committee were renamed, with the exception of J. C. Self, president and treasurer, Greenwood and Mathews Cotton Mills, Greenwood, S. C., who was replaced by Elliott White Springs, president and treasurer, Springs Cotton Mills, Lancaster, S. C.

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Cotton Financial Notes

Helen Mills, Huntsville, Ala., were offered for sale on Dec. 3 by court order.

Westpoint (Ga.) Mfg. Co. reports net earnings for 10 months ended Sept. 1, 1934, of $871,869, compared with earnings for 12 months ended Oct. 31, 1933, of $947,292. In the 10 months the company spent $401,539 for new machinery.

Wamsutta Mills Corp. reports net profit for fiscal year ended Sept. 30, 1934, of $9,714 compared with $52,963 previous year.

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Potomska Mills, New Bedford, Mass., has been sold to General Cotton Corp. at basis of $23.50 per share. A syndicate headed by David L. Allen may operate the plant for a year.

Pomona Mills, Inc., Greensboro, N. C., are to be sold on Dec. 29 by court order following petition by Hunter Mfg. & Commission Co., creditor for $400,000.

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Cotton Mill News

Bama Cotton Mills, Enterprise, Ala., recently organized by D. H. Morris, Jr., and other officials of the Geneva (Ala.) Cotton Mills, have concluded arrangements for purchase of the **Enterprise Cotton Mills,** which will operate in future under the first noted name. Consideration was $43,500.

Tulane Cotton Mills, Montgomery, Ala., is the name of the mill formerly the Crown Cotton Mills.

Pioneer Mfg. Co., Norwalk, Conn., has started operations with a few looms at 50 Day Street, on narrow tape.

Dartmouth Mfg. Co. No. 3 mill, New Bedford, Mass., will be sold to a liquidating firm for dismantling, it is said. This does not affect the operations of the Powdrell-Dartmouth plant which, it is stated, will continue.

Cohn-Hall-Marx Co., New York, has plans under way for establishment of a new cotton mill in Canada.

Double Shoals (N. C.) **Mill Co.,** has been granted a charter by Secretary of State of North Carolina, to own and operate cotton mills; authorized capital $50,000, with $3,000 stock subscribed by A. W. McMurray, J. Tom Moore and C. C. Blanton, all of Shelby, N. C.

Boysell Mfg. Co., Gastonia, N. C., has been purchased by B. J. Bandy, Dalton, Ga. This concern formerly manufactured bath mats, rugs, etc., and was the property of E. E. Boyce. It will develop a line of candlewick bedspreads.

Southern Thread Co., Inc., Lincolnton, N. C., recently formed with capital of $100,000 by W. W. Glenn, president and treasurer, Melville Mfg. Co., Lincolnton, and associates, will take over former local mill of the **Wampum Spinning Co., Inc.,** lately purchased by Mr. Glenn and same interests from John and James Abernathy.

Thread Spinners, Inc., Lincolnton, N. C., recently organized by W. W. Glenn, president and treasurer of the Melville Mfg. Co., and general manager of the Laboratory Cotton Mills, both with local mills, has taken over former plant of the **Lincolnton Thread Spinners,** and will resume operations at early date. Edgar Love is interested.

Piedmont Textiles, Inc., Salisbury, N. C., has been chartered to carry on the business of manufacturing and selling yarns, threads, twine, cloth, textile fabrics, etc. The authorized capital stock is $100,000. Incorporators: W. F. McCanless, R. L. McCanless and M. M. Murphy.

Esther Yarn Mills, Inc., Shelby, N. C., have been formed with capital of $100,000, to take over and operate local mill. Incorporators of new company include Charles L. Champion, Shelby, and John E. Eck, Gastonia, N. C.

Lily Mill & Power Co., South Shelby, N. C., has constructed an addition to the plant, 30x60 ft., which will contain a warehouse and packing room.

Lola Mills, Inc., Stanley, N. C., purchased about the middle of October by R. F. Craig and associates, has been thoroughly overhauled and put into condition for the resumption of operations. The mills had been closed down for some time. Officers of the new company are: James A. Bangle, president; I. E. Craig, active vice-president and assistant manager; R. F. Craig, treasurer, and H. M. Craig, secretary and assistant treasurer.

Liledoun Mills, Inc., Taylorsville, N. C., lately organized with capital of $100,000, plan early operation of a cotton mill in this vicinity. New company is headed by R. S. Ferguson, Taylorville, and R. G. Cherry, Gastonia, N. C.

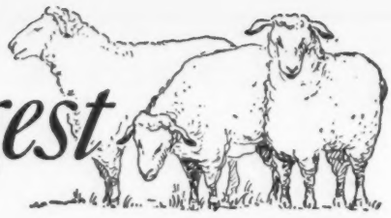
Quaker Lace Co., Philadelphia, has taken out a permit for improvements in mill, to cost $14,000.

Spring Cotton Mills, Fort Mill, S. C., plant No. 2, has constructed an addition. New spinning machinery was installed in this addition for replacement.

Joshua L. Baily & Co. have acquired plant and property of the **Arcadia Mills,** Spartanburg, S. C., manufacturer of cotton goods, at a public sale under court order, on bid of $736,000. Plant consists of two large mill units and group of other structures, including several warehouse units, on 400-acre tract.

TEXTILE WORLD'S

Wool Digest



FROM where we sit, it looks as if the wool industry will not have any particular reason to be proud of its 1934 record. In fact, based on consumption of raw material it will probably be the trailer in the textile parade.

But tomorrow's another day. The turn toward improvement seems to have set in. 1935 should be a pretty active wool year. The two-year cycle in wool goods has always been more clear-cut than in textiles generally, and next year is an "up" year.

It would seem that now is an excellent time for the development of a little more determination within the industry in order that this prospective up-swing may be fully capitalized. Particularly, it is an opportune time for crystallization of the long-delayed promotional plans. We understand some preparatory work is under way. We hope it comes to fruition promptly.—*Editor.*

Spring Women's Wear Starts Well

Spring women's wear lines have been shown in many quarters of the market and reception verges on the enthusiastic. Prices are low and variety of weaves, colors and patterns has never been excelled according to sellers. Woolens attract the greatest attention. The popular price range is 60c. to $1.50. Buyers are also seeking fill-ins for the winter season as well as advance orders for spring. It is rare that heavyweight goods have been deliverable so late in the season.

The American Woolen Co. in Dept. 4 is featuring piece dyes delivered 58 to 60 in. wide which is said to offer advantageous cutting to garment makers who handle large runs. The American's piece dye woolens range from 90c. to $1.17½; worsteds from $1.25 to $1.42½; camel hair and wool coatings from $1.65 to $1.77½, with other coatings from $1.05; sports fabrics from 67½c. to $1.27½.

Botany Worsted Mills offers spring dress fabrics from 97½c. to $1.37½ and coatings from $1.17½ to $1.67½. The line contains a wide variety of attractive weave effects including tree bark, fancy diagonals, lamés, basket weaves, matelasse effects, frosted effects, etc.

J. P. Stevens & Co. have priced their new lines of women's wear at 65c. to $1.50.

Wyandotte Worsted Co.'s opening ranges from 80c. to $1.27½.

Frederick W. Lawrence & Co. are showing women's wear at 77½c. to $1.37½.

Colman & Cohn are showing 36 inch goods using all-wool and silk noils at 45 to 50c.

Toward the end of November the women's wear division of the industry met and decided by large vote not to make any change in the 1 off 10, net 60 terms now in effect.

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Men's Wear Worsteds Score Gains

The men's wear situation has clarified considerably since the general price advance of 2½ to 7½c. per yard. To list the houses which shared in this change would be to present an almost complete roster of the trade. In several instances two advances have been made and others are said to be in the offing despite clothiers' allegations that a rise of more than 5c. puts goods into other price ranges. Certain gabardines have been advanced 17½c., but this is an extreme case.

Because of the price reduction in October worsteds were put into many clothiers' lines which otherwise might have been wholly woolen. This situation promises to restore a better balance between the carded and the combed divisions of the industry, the latter having been neglected for eight to ten months. A 12-oz. three-eighths blood worsted is said to have been available at $1.25, which probably indicates willingness to take a loss on that line.

The decline and rise of worsteds was led by Samuel Hird & Sons, this firm taking the initial action at the start of both movements. The rest of the market followed the changes and so evidenced agreement with them, with only rare exceptions.

On spring lines many mills are sold up to Feb. 1, and there has been good call for spot goods including overcoatings to go into immediate distribution. It is said that only staples are available for spot delivery from mills. Clothiers are so satisfied with general conditions that it is said there will be no January sales of consequence this season.

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Evening Clothes To the Fore!

Repeal and other circumstances have given a boost to sales of men's evening clothes. Clothiers already report evidences of this trend which has risen without particular effort on their part—a little concentrated promotion and the swing toward evening dress might be made a real boon to the industry in 1935.

Clothiers say sales of full evening dress are about one to three of the tuxedo, which is a better record for the swallow-tails than has been seen since 1929. Double-breasted tuxedos run 4 to 6 for single-breasted in some quarters. College men are showing preference for the formal coat as against the tuxedo.

For next summer linen tuxedos will be provided particularly in double-breasted models and if worsted mills want to share in this business they might find a niche for a sheer worsted or mohair fabric.

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Wool Trade Elects Durham Jones

Durham Jones, of Hallowell, Jones & Donald, was elected president of the Boston Wool Trade Association at the annual meeting, Nov. 20. Other officers are: vice-president, John F. Howe; secretary, Claude H. Ketchum; treasurer, F. Nathaniel Perkins.

In accepting the presidency, Mr. Jones pointed out the need and functions of the organization and asked the members to make full use of its facilities. Looking to the future, he stated: "It is my firm conviction that the sum total of the efforts of right-thinking citizens to do their best every day, regardless of their difficulties, is a dominating force that is absolutely certain to carry us all forward to better things."

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Woolen, Worsted Overseers Hold Annual Meeting

The 51st annual meeting of the National Association of Woolen and Worsted Overseers, held in Boston, Nov. 17, was marked by general discussion on the conduct of the beneficiary department. The principal point at issue was that P. J. Harney, secretary of the department, now located in La Porte, Ind., was thought not in a position to look after the affairs of the organization from such a far-off point. Robert J. Harrington, trustee, moved that the president of the association be empowered to appoint a pro-tem secretary of the beneficiary department should Mr. Harney relinquish his duties before the next election, November, 1934.

As usual, the only contested office was that of third vice-president, others being moved up. From a field of five, Clarence L. Cutler, of Methuen, Mass., was elected third vice-president. John J. Fanning moved up to the presidency, succeeding Abraham L. Booth, with John C. Marley and Herbert E. Fulton, first and second vice-presidents, respectively. James J. Burns was reelected secretary and Tom Parkin was placed in the office of treasurer, succeeding Tom Buchan. As noted, P. J. Harney was again elected secretary of the beneficiary department.

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Tops Show Moderate Improvement

Wool tops showed a moderate turn for the better during November in harmony with other products of wool. Best prices of the month were not held, however. Spot prices ranged as follows: Oct. 26, 85c.; Nov. 2, 84c.; Nov. 9, 83c.; Nov. 16, 84½c.; Nov. 23, 83c.; Nov. 30, 84c. Contracts wabbled from week to week, December showing a high of 80c. and a low of 77c. for the month of November.

Forstmann Gets Spindle Exemption

An exemption for 90 days from machinery limitations on worsted spindles has been granted the Forstmann Woolen Co. by the Wool Code Authority and the National Recovery Administration. This permission is based on the highly specialized nature of the Forstmann business. As a result the company will reemploy up to 500 additional workers. It is stressed that the action does not set a precedent.

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Wool Substitutes Make Price Advance

Mixed soft woolens and rough cloth have firmed to 10½ to 11c. There is general evidence of scarcity of this basic mixed woolen rag stock and the advance was made on relatively light operations.

During the month a rise of 1 to 1½c. took place in knit stocks, with light hoods free of silk at 18 to 18½c. White knits are reported at 32 to 33c. and white softs at 28½ to 30c. New white sweater clips were at 53 to 56c. The market is also showing interest in other substitutes such as rayon noils, etc.

Census of 1933 gives number of shoddy establishments as 44, an increase of 4 since 1931, and employees as 1,527, an increase of 458. Products were valued at $10,476,717, a gain of nearly 100%. Pounds of recovered wool fiber were 43,242,000, against 33,500,893 in 1931 and 56,908,767 in 1929.

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Activity of Industry

Current statistics on wool consumption and mill activity follow, the activity percentage being based on single 40 hour shift, 5½ days per week:

Wool consumed:	September	October
Total clean equiv. (excluding carpet)	7,967,000	12,708,000
Carpet wool (grease)	5,574,000	5,630,000
Looms (50" wider)	35.6%	56.2%
Carpet looms	38.1%	38.1%
Combs	35.8%	61.3%
Worsted spindles	25.8%	43.9%
Woolen spindles	58.1%	81.2%

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Wool Demand More Diversified

Demand for wool in November was larger and more diversified than in any month of 1934. That the greater part of the buying was at firm rates confirmed the belief of dealers that the raw material had stabilized on a basis likely to carry over well into the new year. The large Government interest in wool is also relied upon to sustain values. Heavy stocks held by dealers are offset by small supplies of the raw material in mill warehouses. The short time which elapsed between improvement in the goods situation and renewed buying of the raw material is held to confirm this view. Conservative dealers, however, take a reasonable view of the outlook for domestic wool. Looking beyond the immediate present, large wool buying, it is said, will depend to a considerable degree on expansion in general business. It seems somewhat unlikely that any real advance in wool will be seen for some time to come.

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Wool Industry Briefs

Hartford Woolen Co. has appointed Gerome Leonard, New York, as selling agent beginning with the heavy-weight season.

Woolen & Worsted Yarn Credit Group, New York, elected J. J. Aylward of Meinhard Greeff & Co. as president for 1935, succeeding Henry Scheer of the American Woolen Co.

Clifton Yarn Mills is offering a yarn of 75% Du Pont staple fiber and 25% rabbit hair for knitting light weight outerwear.

Army bids were opened on Nov. 15 for 11 oz. dark blue flannel. For 50,000 yd. bids ranged from $1.446 to $1.79, American Woolen Co. being low bidder; for 100,000 yds. bids ranged from $1.416 to $1.84, same bidder being low.

Worumbo Co. will, after Jan. 1, confine its line of "Polo Cloth" camel's wool fabrics to D. Siegel Co. The plan revives a similar arrangement of some years ago. Topcoats of "Polo Cloth" for spring will retail for $110.

Germany is said to be preparing to use Turkey as a wool source and with that in mind is said to be sending breeding sheep to Turkey to improve the strain.

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Wool Mill News

Huntington (Mass.) **Textiles Co.** is preparing to install 24 new automatic looms and modernize others, including 10 which have been idle due to obsolescence, thus increasing equipment from 50 looms to 84. The dye-house and pressing and drying departments will also be modernized, according to D. V. Messer, president and manager.

Howarth Mill, Oxford, Mass., has been bought by Benjamin F. Haas, New York. The mill operated 50 looms and has been closed three years. It will be modernized.

Packard Mills, Webster, Mass., is reputed to have made a 10% wage increase at mid-November. **Fabyan Woolen Co.,** Medway, Mass., and **Ware** (Mass.) **Woolen Co.** likewise raised wages.

Yale (Mich.) **Woolen Mills** have broken ground for one-story addition, 120x205 ft., sawtooth roof type, for which general contract was let to the Austin Co., Detroit, Mich., estimated to cost about $55,000. Company will remove 20 automatic looms from branch mill at Marysville, Mich., for installation in new unit, remainder of space to be used largely for raw material storage and distribution.

Forster Woolen Mills, Passaic, N. J., will soon install 12 additional looms and provide 2,000 sq.ft. floor space for them.

National Worsted Mills, Inc., Falconer, N. Y., have been organized with capital of $250,000, to purchase and operate the 10,000 spindle yarn plant of the Chautauqua Worsted Mills. New company will take immediate possession and will make improvements in plant and equipment. The mill has been idle for two years and is scheduled to resume operations early in 1935, with employment of more than 300 persons. New company is headed by Philip (president) and Carl Leff (treasurer), heads of the National Spinning Co., Brooklyn, N. Y., and Julius G. Ellis (secretary and manager), heretofore resident manager of the Bradford Mills of the American Woolen Co., Louisville, Ky.

Yorkshire Worsted Mills, Lenni Mills, Pa., have concluded negotiations for acquisition of mill of George C. Hetzel Co., Front St., Chester, Pa., and will consolidate operations of the two plants for increased production.

Orrell Mills, Inc., Glendale, R. I., including water rights and accessory property, have been acquired by new interests, represented by John A. Tillinghast, Providence, R. I., attorney. New owner has organized the **Glendale Mills, Inc.,** to take over and operate the plant, which has been inactive since last spring.

Blue Ridge Co., Inc., Glasgow, Va., recently organized by Abraham T. Eastwick, president, James Lees & Sons Co., worsted yarns, Bridgeport, Pa., and officials of the Charles P. Cochrane Co., carpets, Philadelphia, Pa., an affiliated interests, has engaged the Ballinger Co., Philadelphia, architect and engineer, to prepare plans for initial units of proposed new woolen mill at Glasgow, where tract of about 75 acres of land, fronting on James River, has been acquired. Plant will consist of several units, with boiler plant, machine shop and other mechanical departments, and is reported to cost over $350,000, with equipment. It is proposed to ask bids on general contract some time in December. New company is capitalized at $1,000,000, and will be headed by Mr. Eastwick.

Frank H. Copp, who has been operating a woolen mill at Port Elgin, N. B., for the last 17 years, bid in the buildings of the **Amherst Woolen Mills,** Amherst, N. S., at public auction, recently, for $650.

TEXTILE WORLD'S

Rayon Digest

THE daily press is carrying frequent reports of the progress of "artificial wool" in Germany and "artificial cotton" in Italy. Public interest in these developments is wide-spread. They have a way of capturing the imagination.

But there may be a day of reckoning ahead. These fibers are not "artificial wool" or "artificial cotton" and some day it may be necessary to undo the false impressions created by the use of such terminology.

The domestic industry may feel that this is not its party, since the reports are coming mostly from abroad. However, it is a phase which bears watching. Whenever there is a chance to offset the effect of the use of these terms, it should be grasped. The possibilities in the field of what we have called, in these columns, "rayon's little brothers" are so great that they should not be jeopardized by careless nomenclature.—*Editor.*

Weavers Support Recovery Effort

Full cooperation both with other industries and with the Government in the recovery program, was the keynote of the second annual meeting of the National Association of Rayon Weavers, held Dec. 4, at the Harvard Club, New York City. The assertion made by Percy S. Howe, association president, in his address that "little is to be gained by bucking the trend" was reflected in the spirit of the meeting and others speakers were George A. Sloan, president of the Cotton-Textile Institute and ex-Governor O. Max Gardner, of North Carolina.

The meeting was in executive session and was attended by weavers representing 50,000 looms. The members reelected Mr. Howe as president and J. Spencer Love and Charles Walcott, as first and second vice-presidents respectively of the association. C. Whitney Dall was elevated from his post as secretary-treasurer of the association to the triple post of executive vice-president, secretary and treasurer. Opposition to the plan for a promotional campaign to be undertaken jointly by the weavers and the rayon producers was voiced by ex-Governor O. Max Gardner, speaking as a rayon weaver, and others, the criticism being that the drive was ill-timed.

The problems of the association during its 18 months of development were reviewed by Mr. Howe in his address. He emphasized the value of cooperative effort in such matters as strikes, and urged that the rayon weavers "align themselves with all industry in adjusting to the new trends." Mr. Sloan's talk was on general problems confronting the textile trade and he pointed out the wider responsibilities of trade associations.

Analyzing the meeting subsequently, weavers said it was decidedly constructive in general program, but some regretted the new uncertainty injected into plans for the promotional drive; the trade was still hopeful that the weavers as a body would take part in the project.

World Output Takes Sharp Rise

World production of rayon during the third quarter of 1934 increased appreciably over the same period of 1933 and reached a record total, according to estimates computed in Great Britain. The 1934 total for the July-September quarter is given as 196,808,000 lb., as against 165,747,000 lb. for the 1933 period. TEXTILE WORLD's London correspondent writes that viscose process yarn output increased 22% while acetate output declined 11%.

Following is a table based on the British estimates and contrasting the chief rayon producing countries:

	July/Sept. 1934	July/Sept. 1933
U.S.A.	45,540,000	47,707,000
Japan	40,018,000	24,156,000
Italy	27,456,000	20,196,000
Germany	23,320,000	17,633,000
United Kingdom	21,490,000	22,890,000
France	19,800,000	14,806,000

NOTE: In reading table, it should be noted that, because the United States and the United Kingdom are spinning finer yarns than the other countries, the poundage figures for those two countries are relatively lower than would be the yardage figures.

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Producers Sign Up For Promotion Drive

The rayon promotional campaign moved rapidly toward the enactment stage during recent weeks. In mid-November it became known that the joint committee representing producers and weavers had agreed on the tentative program for the administration and fund-raising activities of the drive. A week later the producers themselves met in New York and voted approval of the plan, and a sufficient number signed the contract to assure the funds for the producers' division being raised.

Only the similar action by the weavers was lacking to make the drive a certainty, it was stated.

As previously stated, funds will be raised by a tax on rayon consumption by the individual firms in the producing and weaving divisions, respectively. It was understood that in their final approval the producers made several modifications in the original program, these changes however being of minor character.

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Feast and Famine Mark Yarn Sales

Yarn producers reported an unusual variation in their proportionate shares of the November yarn volume. Some firms enjoyed a volume "only moderately below November 1933" in dollars, while others experienced a light month. Demand came chiefly from weavers, as usual, and interest centered on 125 denier; however, there was also a spirited call for the heavier yarns such as 200 and 300; one major producer found difficulty in filling orders for 300s. Yarn stocks in producers' hands appeared to be unchanged and price tone was steady.

Reports of a let-up in the call for acetate yarns were only partially confirmed on market inquiry; in certain consuming divisions acetates have slowed up, but other branches continue buying actively.

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November Brings Many New Rayons

The month of November was replete with interest from a merchandising viewpoint. One of the features was a line of new decorative fabrics which was included in the textiles shown at the Contemporary Industrial Art Exhibit of the Metropolitan Museum of Art, New York. Rayons were highlighted in the room interiors at that showing, and also in special displays of fabric lengths of velvet, drapery lace, brocade, rayon points, etc. The DuPont Rayon Co. was represented at the event with a comprehensive group of fabrics; among these was the tree-bark material originally developed for decorative use but immediately adopted by Schiaparelli for dress fashions; it is now shown as a decorative fabric, together with an interesting group of novelties. One feature was "Luvet," designed by Donald Deskey and woven of Cellophane slit cellulose film and cotton.

Synthetics take on fresh elegance for the resort season in new materials developed by the Viscose Co. Fabrics combining the acetate (Seraceta) with the viscose (Crown) yarns of this firm's rayon family are especially attractive. The new line includes smart blistered polka dot effects, stripes, crinkles, lacey knit materials and a range of tailored numbers. Matelasses dominate in all divisions.

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25 Years in Rayon, Voegelin is Honored

John Voegelin, the alert assistant sales manager of the Viscose Co., objects to being designated as a "rayon veteran" but the fact remains that last month the staff of the Viscose Co. gave him a testimonial dinner in New York in honor of his having completed 25 years in the rayon in-

dustry. Mr. Voegelin first became connected with the firm of S. A. Salvage Co., which was handling the new American business of the Courtaulds Ltd. Then, 23 years ago, he went with Salvage into the newly formed Viscose Co., of which Mr. Salvage is now president.

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Nine Months' Exports Reach $3,301,767

Rayon exports of the United States totalled $3,031,767 during the first three-fourths of 1934, according to figures announced by the Bureau of Foreign and Domestic Commerce of the Department of Commerce. Of this total the September exports reached $351,684. Yarn exports, the major item aggregated 1,891,961 lb., value $994,993 for the entire nine months, and 218,226 lb., value $111,010 for September. Woven fabric exports, second in importance, totalled 2,194,208 sq. yd., value $881,139 for the nine months.

Rayon wearing apparel headed the list of imports representing a value of $466,119, out of the total imports of $1,635,388 for the three-fourths of 1934. Fabric imports in the same period totalled 125,150 lb., value $384,445.

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Spun-Rayon Experiments

Courtaulds, Ltd., is installing equipment for experimenting with the spinning of staple rayon on the worsted system at its recently acquired Arrow Mills, Castleton, England, where it is already commercially spinning rayon on the cotton system by both ring and mule.

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Synthetics Highlight of Paris Mid-Season

Synthetic yarns come forth in a group of distinctive fabric identities in the models shown at the Paris mid-season displays. One evening dress offered by Marcel Rochas features velvet made with slit cellulose film; this house also displays rayon faconnes, clokeys, moires and jerseys. Rayon crepes with woolen appearance continue in the limelight, as witness Jodelle's collection which includes a number of these crepes and also uncrushable rayon velvets. Other rayon fabrics seen are tulles, satins and some striking reversible crepes. The Paris office of the DuPont Style Service points out too that rayon receives increased importance in the new floral accessories.

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Jan. 18 Deadline On Furness Plan

Plans to reorganize the Furness Corp., rayon manufacturers, of Gloucester, N. J., which were understood to be in process of formulation, must be presented at the Camden, N. J., Federal Court on or before Jan. 18, 1935, under a decision handed down Nov. 23 by Judge J. B. Avis, at Camden. Judge Avis also made A. L. Rogers, of Woodbury, N. J., permanent trustee for the company. Mr. Rogers had acted in that capacity under a temporary appointment. The reorganization plans while still tentative are understood to provide for the raising of $125,000 new capital. It was brought out at the Nov. 23 hearing that any reorganization plan must have approval of 66⅔ of claims if it is to be authorized by the court. Debts of the company are placed at $400,000 and the Furness patents claimed to be "worth millions" are understood to be the only sizable assets. Subsequently the reorganization committee denied reports that another rayon company might buy the patents, and stated that these rights would not be sold.

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Rayon Industry Briefs

Brand names of synthetic yarns are now being used by R. H. Macy & Co., New York, in rayon underwear promotion.

Miss Pauline Alper, of the Viscose Co. recently addressed the customers of Gimbel Bros., Philadelphia department store, on the application of the Viscose Quality Control Plan to drapery fabrics.

Prosperity—Business of the rayon division of the Federated Textiles, Inc. has increased to such a point that this department has been moved to larger quarters in its present location at 1441 Broadway, New York.

Enter Pine Rayon!—The State Engineering Experiment Station at the Georgia Polytechnic Institute has succeeded in making rayon fiber from slash pine, and now the station is studying the possibilities of its commercial production.

The decision of William Skinner & Sons, one of the leading quality broadsilk houses specializing in all-silk fabrics, to open a synthetic fabric department became known in the market in mid-October and excited considerable attention. Rayon merchandisers attached much significance to the move; it was pointed out that up until recently the Skinner firm had stoutly refused to include synthetic yarn fabrics. Milton Bierman, formerly of American Bemberg Corp., is in charge, and Stewart Kilbourne will handle New York sales.

Umbrella Market Widens—Prospects for increased use of rayon in umbrella fabrics is seen as result of recent developments in manufacture of low-priced rayon-and-cotton fabrics. These fabrics are to be used for umbrellas retailing at $1 and $2, and it is believed they have good opportunity here due to the superior appearance of the fabric and the fact that it permits the umbrella to roll tightly.

Inquiry at Hopewell—Reports of impending trouble at the Hopewell, Va., knitting plant of Tubize Chatillon Corp. have become so insistent that the Hopewell Chamber of Commerce has started a general investigation aiming to prevent another strike.

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Foreign Flashes

A Costly Battle. It is estimated that the current litigation between British Celanese, Ltd. and Courtaulds, Ltd., over acetate patents, and which is being heard in the British House of Lords, will cost the litigants about $100,000. The suit is now in its third year.

German staple fiber production will be increased by 100,000,000 lb. annually under an order recently issued by the government. It is understood that the additional production will be used for domestic purposes largely in mixtures with cotton and wool.

Poland raised her rayon yarn production during the first eight months of 1934 to 2,946 tons, against 2,273 tons in the same period of 1933, according to reports reaching the Department of Commerce from Commercial Attache Lay Clayton Lane, Warsaw. Rayon exports, however, declined about 60%, due chiefly to foreign import and exchange restrictions.

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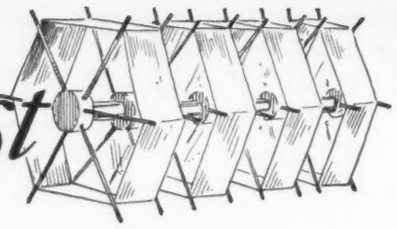
Rayon Mill News

Clyde Mills, Inc., Westerly, R. I., equipped with 120 looms which were lately operating on rayon novelties, were offered at public auction Dec. 11 The sale is to satisfy a mortgage.

Canadian Celanese Ltd., Drummondville, Que., has advised its preferred and common shareholders to attend a special meeting on Dec. 11, for the purpose of considering and approving a plan designed to eliminate the arrears on preference shares of the company, which at present amount to $24 per share. The proposed arrangement provides for the issue of 90,000 income funding rights of no par value in the proportion of one income funding right to each share, which will be purchaseable in the open market by the company, callable by lot, or redeemable at $25.00 per right. The rights carry interest at 4% per annum.

TEXTILE WORLD'S

Silk Digest



THE National Federation of Textiles, Inc., is entering new territory. Early this month it held what is described as "the first nation-wide get-together of silk and rayon men since the old Silk Association was founded in 1872."

The program was an ambitious one. It brought to the industry the points of view of Government officials and of prominent leaders in industry. Thus, it afforded an opportunity to take stock of progress in self-government under the code and to exchange views on the problems with which the various branches of the industry are now confronted.

It was a well-conceived and well-executed meeting which should serve to promote further the sense of purposefulness in this group.—*Editor.*

New Silk Campaign

Plans for the 1935 silk promotional drive which is to be a follow-up of the recent Silk Parade were still in process of formation at the end of November, it was stated by officials of the International Silk Guild. R. D. Jenkins, vice-president of the Guild, said preliminary announcement had been made so that fabric mills making silk merchandise could be prepared for a spirited spring demand. He added that the new drive would be "stronger and more far-reaching in scope" than the Silk Parade.

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Elect New Silk Code Authority

The new Code Authority for the silk textile industry, as elected at the convention of the industry held Dec. 7 and 8 in New York follows:

Broadsilks—John R. McGinley, Phillipsburg Silk Mills, W. W. Metcalf, Portland Silk Corp., Walter E. Stunzi, Stunzi Sons Silk Co., New England—Chas. D. Jenckes, Hamlet Textile Co.; New Jersey—Louis E. Cohen, Prudential Silk Mills; Pennsylvania—Ewald H. Schniewind, Susquehanna Silk Mills; South—Alexander F. Ix, Frank Ix & Sons; Converters—Louis Alpren, Alpren Brothers, Louis Lazare, Duplex Silk Corp., Bertrand H. Perry, Perry Silk Co., J. Y. Wilkins, Goldstein Wilkins Corp., A. E. Wullschleger, Wullschleger & Co.; Throwsters—Nathan Lewis, Kahn & Feldman; Ribbons—Irving Levy, Century Ribbon Mills; Underwear—Nat. H. Aronsohn, C. K. & N. H. Aronsohn; Tie Silk—B. Edmund David, David Silk, Inc.; Woven Labels—Ben Reiss, G. Reiss & Bro.; Hat Bands—Edward Roberts, Roberts Cushman & Co.; Thread and Floss—Raymond G. Kramer, Belding, Heminway, Corticelli; Fashion Fabrics—William Menke, Menke, Kaufmann & Co.; Spun Silk—Kenneth B. Blake, Cheney Brothers; Chairman—Peter Van Horn and Vice-chairman—Howard Heyden.

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1933 Census of Silk and Rayon Goods

Wage-earner employment in the manufacture of silk and rayon goods in the United States increased rapidly in the spring of 1933, the figures for June, September, and December being considerably higher than those reported for May or any subsequent month of 1931 (the last preceding census year), according to a preliminary report compiled from data collected in the Biennial Census of Manufactures taken in 1934. The average for the year, 110,322, is slightly above that for 1931, 109,225. In December, 1933, the figure was 114,567.

The total value of silk and rayon goods (not including knit goods) made in 1933 amounted to $244,261,296 (at f.o.b. factory prices), against $376,090,639 reported for 1931. The production of broad goods in 1933 (except velvets, plushes, upholsteries, and tapestries) amounted to 558,880,768 square yards, valued at $184,563,624—a slight decrease in quantity and a pronounced decrease in value as compared with 566,864,129 square yards, valued at $281,616,907, reported for 1931. This decrease is the net result of several factors, the most important of which are (a) a decrease in the production of all-silk fabrics, from 386,294,116 square yards, valued at $209,838,467, to 201,438,039 square yards, valued at $77,112,390, and (b) an increase in the production of all-rayon fabrics, from 109,389,943 square yards, valued at $38,400,652, to 272,821,897 square yards, valued at $78,799,133. The production of silk-and-rayon mixed goods also showed a striking increase. Velvets showed slight increase; plushes, upholsteries, tapestries and ribbons a decrease. Yarns and threads for sale also showed a decrease.

The following figures are taken from the summary table issued as part of the preliminary report:

	1933	1931	1929
Number of establishments	1,087	1,211	1,491
Wage earners (average for the year)[1]	110,322	109,225	130,467
Wages	$74,098,215	$97,409,008	$137,547,146
Cost of materials, fuel, and purchased electric energy	$143,611,431	$212,846,607	$412,181,260
Products, total value	$290,577,662	$422,771,960	$731,200,231
Value added by manufacture[2]	$146,966,231	$209,925,353	$319,018,971

[1]Not including salaried officers and employees. Data for such officers and employees will be included in a later report. The item for wage earners is an average of the numbers reported for the several months of the year. In calculating it, equal weight must be given to full-time and part-time wage earners (not reported separately by the manufacturers), and for this reason it exceeds the number that would have been required to perform the work done in the industry if all wage earners had been continuously employed throughout the year.

[2]Value of products less cost of materials, fuel, and purchased electric energy.

California Exchange Will Open Dec. 17

Plans for the formal opening Dec. 17, of the California Commodity Exchange at San Francisco, which will include a Raw Silk Futures Division were made known at the end of November. All raw silk which meets the established American standards irrespective of the land of its production will be accepted for trading on the Exchange. Silk futures will be the first commodity offered, and rubber and other commodity trading will follow a few weeks later.

The basic silk grade is 83% seriplane yellow, 20/22 denier silk in price multiples of one-quarter cent. The trading months will be confined to the actual silk producing months. It is understood that about 40 New York silk traders have joined the Exchange, together with about 200 in California.

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Learn From Strike; Authority Tells How

Constructive guides to future policy in the silk industry may be gleaned from close post-mortem study of the September strike, it was pointed out in a recent Bulletin of the Silk Code Authority. The Bulletin stated that improvement in the industrial relations in the industry was advisable and added that a special department of the National Federation of Textiles, Inc., may be created for this purpose; the Bulletin also recommended that the Government make a study of sympathetic strikes as differentiated from strikes in separate industries.

Equally important was the announcement in the same publication that the Federation now has available for mill owners full information regarding the use of the court injunction to prevent intimidation. The Federation retained W. G. Merritt, of the law firm of Gleason, McLanahan, Merritt & Ingraham, to prepare comprehensive summaries of injunction data and this valuable material is ready for the industry in case of future strikes.

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Another Strike Menaces Paterson

Wearied by their protracted difficulties, union leaders and mill owners in the Paterson, N. J. broadsilk district were striving at the end of November to reach an agreement which would avert a new strike there. A critical situation developed in mid-November when the American Federation of Silk Workers announced in Paterson that a strike of all union workers in the district had been ordered for Nov. 21. Leading

citizens and civic bodies intervened to prevent another tie-up of the industry, and various conferences were begun looking to settlement. The date of calling the strike was deferred pending the outcome of the negotiations.

The issue was whether a new contract could be developed which would be acceptable to both sides, and manufacturers at first were reluctant to consider a contract because the union had ignored the previous pact when it called the September strike.

Meanwhile the Federation of Silk Workers at its convention in New York City voted Nov. 25 to hold a strike referendum of the entire industry, subject to recommendations made by the various Winant agencies.

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Fabric Sales Data Show 31.1% Rise

Gross shipments by stock mills in the broadsilk industry increased 31.1% during the second half of October as against the preceding half-month, according to figures made public last month by the Planning and Research Bureau of the National Federation of Textiles, Inc. Key figures were:

	Oct. 16-31, 1934	% Change from Last Period
Production (off looms)..	8,641,000	+28.2
Gross Shipments.....	9,613,000	+31.1
Stock on hand 10/31...	39,929,000	+ 2.6

Raw silk deliveries declined 23.5% in November from their remarkably strong showing of October, according to data made public by the National Federation of Textiles, Inc. However, the November figure was 7.8% higher than in the same month in 1933.

Key statistics follow:

	Imports	Approx. Deliveries	At warehouses (end of month)
Oct. 1934	38,940	49,106	66,479
Nov. 1934	47,571	37,548	76,502

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Strike Threat Brings Fabric Price Rise

The disturbed labor situation in the Paterson, N. J. silk district served to stimulate broadsilk demand in the New York market at the end of November, and leading firms reported a sharp rise both in spring orders and in the prices of certain popular fabrics. Individual commitments were of good size, and there was a conspicuous lack of haggling on prices. Indeed, some broadsilk houses looked for an advance in quotations if the current volume was maintained.

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Raw Silk Continues Its Upward Trend

Raw silk continued its steady upward trend in price during November, despite various adverse factors such as the finishing strike, and prospects pointed toward sustained firmness into the new year. While the outlook with respect to the broadsilk mills was far from definite, importers regard the fact that their own prices are holding strong as evidence of a fundamental improvement in the market generally. The price of crack double extra 13/15 white 78% rose from $1.25 the latter part of October to $1.32½ in late November, a gain of 5½c.

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NRA Code Notes

Resignation of Luther K. Bell, as treasurer of the National Federation of Textiles, Inc. and as a member of the Silk Code Authority which has frequently been reported was confirmed Nov. 12; it was made known that Mr. Bell's duties had been assumed by A. A. Clune, assistant-treasurer of the Federation.

Narrow Ribbon Specialty Mills, Inc., it was announced Nov. 16, by the NRA, has consented to a decree enjoining the firm from violating the silk textile code, and also has agreed to make restitution of about $2,000 back wages to employes.

NRA's ruling terminating the order exempting firms from contributing to any but their own industry's code, is warmly praised by leaders in the throwing industry. Officers of the Throwing Code Authority pointed out that the exemption worked injustice since numerous firms whose major business is weaving but who also throw yarn enjoy the benefits of the Throwing Code Authority's services and therefore should share costs for the same.

1934, a Better Year for Woven Labels—In urging certain amendments to the silk code at a Washington hearing recently, Walter Richter, of the Warner Woven Label Co., and president of the Woven Label Manufacturers Association, testified that this industry expects its 1934 volume to total $4,000,000, or $600,000 above 1933.

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Silk Mill News

San Marcos (Calif.) **Silk Co.** is starting up under a new set-up. The firm breeds silk worms and is installing new reeling machines, according to local reports.

Mystic, Conn. Cycan interests from Middletown, Conn., are reported to be organizing a silk manufacturing company at Mystic under the leadership of Miss Florence Cycan, who has purchased equipment from Universal Liquidators, Inc., New York. Members of the family formerly operated the Cycan Silk Co., Middletown.

Middletown (Conn.) **Silk Co.** has added machinery of the **Mabson Silk Co.** to its equipment and will expand production. The Mabson Silk Co., Holyoke, Mass., has been established nine years and is named for Max A. Bornstein, principal owner of the Middletown company.

Belding Hemingway Corticelli Co., Putnam, Conn., and elsewhere, reports a net profit of $373,573 for the nine months' period ending Sept. 30. The corresponding period last year showed a net profit of $377,208.

Willimantic Silk, Inc., and **Corn Spinning Co.** will move their plants from Willimantic, Conn., according to Max Stein, president of both, who attributed the projected move to labor conditions. The mills have been closed since last June.

Stone Silk Mills, Inc., Paterson, N. J., have been formed with capital of 500 shares of stock, no par value, to operate a local mill. New company is represented by David L. Cole, 45 Church St., Paterson.

United Throwing Corp., Paterson, N. J., has arranged for change of company name to the **Columbia Silk Mills, Inc.**

Darwel Silk Co., Inc., Phillipsburg, N. J., recently organized with capital of $10,000, by Harold Young and Paul West, 324 Warren St., Phillipsburg, plans early operation of new throwing and weaving mill in this vicinity.

Domestic Silks, Inc., 463 Seventh Ave., New York, have concluded arrangements for establishment of a new mill at Hattiesburg, Miss. Agreement has been made with city to furnish a suitable building, to be remodeled and converted for new plant. Initial installation will include about 200 looms and auxiliary equipment. Plant is reported to cost over $75,000.

Joseph R. Morton & Co., Burlington, N. C., recently let contracts for equipment to be used in its new silk throwing plant, which include: throwing equipment, 1000 spindles, to W. A. Kennedy Co., Charlotte, N. C., sales agents for Fletcher Works, Philadelphia; winding equipment to Sipp-Eastwood Corp., Paterson, N. J.; coning equipment to Universal Winding Co., Boston. W. A. Bilberstein, Charlotte, N. C., is the engineer in charge.

Dubois (Pa.) **Silk Throwing Co.** has been ordered liquidated and the case has been referred to a referee for further proceedings.

Klots Throwing Co., Scranton, Pa., is approaching final approval for its plan of reorganization under title of Klots Corp.

Riverside Silk Mills, Ltd., Galt, Ont., have plans nearing completion for two mill additions, consisting of a three-story unit, 30x85 ft., and one-story structure, 32x85 ft., estimated to cost over $45,000.

TEXTILE WORLD'S

Knit Goods Digest

ONE of the most significant moves undertaken recently in the textile industry has been the effort launched by the National Knitted Outerwear Association toward supplanting obsolescent machinery with modern equipment. The association has called the knitting machinery manufacturers together for a conference at which details of the financing of the project are to be developed.

Substitution of the latest improvements in the machinery field, according to Harold R. Lhowe, executive director, will enable the knitted outerwear industry to meet the increased production costs resulting from the NRA code, without advancing the unit cost to the consumer. In addition, the plan would help toward a revival of activity in the heavy goods industries, recognized as so vital in the recovery movement.

It is pointed out that the sole antidote for the price advances necessitated by increased wages and other costs lies in added production efficiency, enabling manufacturers to distribute more wages without compensatory rises on the price tags on finished products. It is hoped that the move to renovate the productive equipment of an entire industry, if effected, will perpetuate the present balance.

So far as we know, this is the first attempt of this sort, at least on an industry-wide scale. It bears close watching as it may have a lesson for every branch of industry.—*Editor.*

Round-Robin Visits Help Hosiery Parley

A new approach to a solution of the hosiery industry's problems was made by the Code Authority last month when that body called the various advisory committees to a general conference. The meeting was held Nov. 19-20 at the Waldorf-Astoria Hotel, New York, and it was a decided success in that it enabled the industry's leaders to understand the problems more fully than hitherto had been possible. Outstanding among developments was the appointment of a special committee, headed by Henry H. Herbst, as chairman, to study all phases of production control. The committee, which comprises the chairman of the advisory committees, plus one other member from each, will report with recommendations at a similar conference to be held next February.

At the Dec. 19 session the Code Authority announced that early approval of the amendments on hours of labor and wages was expected and announced also that it intended to withdraw its proposed plan to require certificates of necessity for installation of new equipment. The committee on production control was appointed at the Tuesday session. One new departure at the conference, and a feature which added much to the value of the assembly was that during the separate meetings of the different advisory committees, the members of the authority made one-hour visits to each of these meetings. This round-robin method proved very effective in getting a constructive interchange of views. It was decided to hold such conferences regularly at three-month intervals.

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"Outerwear Week" Feb. 11-15 in N. Y.

The week of Feb. 11-15 will have every right to be called "Outerwear Week," in New York City, according to a tentative program made known late last month by the National Knitted Outerwear Association. The highlight event will be the third National Knitwear Industrial Exposition, which will be held through the week at Grand Central Palace. Plans for this event are in charge of M. E. Thayer, exposition manager, who reported that the early interest evidenced by machinery manufacturers pointed to unusually heavy demand for exhibition space. Other events scheduled for the same week in New York are the annual convention of the National Association, including the annual banquet of the industry, and several important meetings of the Knitted Outerwear Code Authority.

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Seek Depreciation Data

With the aim of eventually establishing standard depreciation rates for the underwear industry, Roy A. Cheney, managing director of the Underwear Institute, has sent out a questionnaire to all member firms asking for data and suggestions pertaining to this subject. Mr. Cheney explained the action was in line with the Treasury Decision 4422 which contemplates a new method of computing depreciation allowance.

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Outerwear Ass'n Plans Changes

Plans for reorganization of the eastern branch of the National Knitted Outerwear Association to permit swifter and more direct expression by members on critical issues, were announced last month in New York.

The Association also made known the removal this month of its New York headquarters from the Metropolitan Life Building to 386 Fourth Ave., where quarters also have been taken for the Code Authority.

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Fairly Merry Xmas For Hosiery Mills

Approach of the holiday season found the hosiery market in moderately good position. Determined steps against stock accumulation have served to reduce surplus with the result that there was little likelihood of any price softening before the end of the year. Christmas deliveries kept mills busy through November and into the current month and numerous of the larger companies were understood to have sufficient orders on hand to hold their quotations firm until January.

The business done on three-carrier was good though various factors complained that it would have been better if the whole ringless situation had not been beset by threats of litigation. During November the bulk of ringless were selling to retailers at $6 and to wholesalers at $5.75.

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Rollins Raises Wages

Difficulties between the management and employees at the Rollins Hosiery Mills, Des Moines, Iowa, were adjusted Nov. 19, with the announcement by officials of the American Federation of Hosiery Workers that an 8 to 20% wage increase had become effective. Time workers were raised 10%, foot knitters 12%, and leggers about 20%. The revision makes the basic scale at the mill now about $22 weekly, union officials said. John H. Brine, president and general manager of the company confirmed the settlement, stating that a "satisfactory" arrangement had been made.

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Compromise on Ringless?

Intimation that a compromise soon might be effected in the ringless hosiery patent controversy over licensing terms was seen in the announcement made last month by Wm. R. Smith, counsel for Textile Patents Corp. that revised contracts and the entire program of the corporation would be submitted to the trade shortly. He said the revised contracts positively were in final form and that further change would not be considered.

Unshrinkable Wool Hose

Evidence that the field for unshrinkable textiles is expanding from the woven-fabric industry to the knit-goods division is evidenced in the announcement late last month by Westminster Hosiery Co., 232 Madison Ave., New York, of 6x3 ribbed wool hose which will not shrink upon laundering. No technical details have been made public as to the methods employed in manufacturing these particular hose, but an article in our last issue discussed several processes which have been developed for producing unshrinkable knit goods.

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Hosiery Stock Decline Continues

For the second consecutive month hosiery stocks showed a decline at the end of September, according to figures made public by the statistical department of the Hosiery Code Authority; shipments, however, also have declined. Comparative stock data by dozens for the July-September quarter follow:

Type of hosiery	—Stocks on hand at end of month— July 31, 1934	August 31, 1934	September 30, 1934
Total, all types.	18,353,173	17,318,822	16,097,262
Full-fashioned, total.....	5,141,603	4,883,630	4,534,821
Seamless, total.	13,211,570	12,435,192	11,562,441

Shipments of all types of hosiery total as follows: September, 1934, 8,004,764 doz.; August, 1934, 8,765,694 doz.; August, 1933, 8,775,721 doz.

Underwear statistics for September reported by the Department of Commerce:

	Sept.	August
Production.....	1,295,759	1,470,573
Shipments.....	1,875,731	1,974,669
End-Month stocks.....	3,114,110	3,728,320

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Industry Briefs

Sh-h! It's Propaganda!—Outerwear mill workers soon will receive their pay in envelopes bearing printed suggestions that they buy, wear and promote knitted outerwear, under plans now being developed by the National Knitted Outerwear Association. The Association proposes to prepare such pay envelopes and distribute them to mills.

One of the newest knit goods novelties is a tubular knitted casing for high-ball glasses, marketed under the brand name "Hy-Jacs," and which made its appearance in New York stores this month. The glass-holder has a fancy top similar to an infant's sock and is made in various designs. Promotion of this novelty stresses the point that it prevents dampening of the hand or table in the handling of a high-ball glass.

Charges that the Federal Emergency Relief Administration had financed an outerwear mill in Winchenden, Mass., which took employees away from a long-established outerwear firm, paralyzing production in the latter mill, have been made by Sidney S. Korzenik, secretary of the Knitted Outerwear Code Authority, in a letter written Nov. 20 to the FERA. He said a similar mill operated in Millville, Mass.

Spring underwear opened firm, but in November New York wholesalers claimed some mills were selling 8 to 10% below list. This reduction was being given chiefly to quantity buyers, and the weakness carried through union suits, woven shorts and woven shirts, according to trade report.

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NRA Code Notes

Revision of NRA code as proposed by the NRDGA is strongly opposed by Harold R. Lhowe, executive secretary of the Outerwear Code Authority, who asserts that adoption of the retailers' suggestions would "once again put manufacturers at their mercy."

Overlapping definitions in codes of the millinery and outerwear industries were considered at a hearing held under NRA auspices in New York, N. Y., Nov. 23.

Conditional exemption from labor provisions of the Underwear Code has been granted the knit elastic fabric group of that industry.

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Knitting Mill News

J. P. Hayes, Union City, Ga., is at head of a project to establish and operate a new hosiery mill at Rockingham, N. C. Negotiations are in progress for lease of the Hope building.

Lowell (Mass.) **Knitting Mills** have been organized by H. T. Kauderer, formerly superintendent of Suffolk Knitting Co. The plant is at 95 Bridge St. Outerwear will be made.

Leeds Silk Hosiery Mills, Clifton, N. J., have been formed by Sam Kahn, formerly of Propper-McCallum Hosiery Co. Leo Propper will be in charge of production and management. All the product will be three-carrier work.

Rittan Knitting Mills, Hoboken, N. J., is reported to be equipping a plant to make men's and women's bathing suits. Louis Tanenbaum is head of the firm.

Duchen Knitwear Mills, Brooklyn, N. Y., for 15 years at 2402 Atlantic Ave., have moved to larger quarters at 41 East 11th St., New York City.

Super Knitting Mills, 128 West 24th St., New York, has filed notice of change of company name to the **Arthur Knitting Mills.**

Mock Judson Voehringer Co., Greensboro, N. C., has installed $150,000 worth of full-fashioned machinery which began operating Dec. 1.

M. G. Smith, Conover, N. C., has purchased the equipment of the **Paramount Hosiery Mill,** Hickory, from J. K. McCall and Wade B. Bowman, the owners, and will move the machinery to Conover as soon as the 40x70 ft. mill building is erected. Construction began Nov. 30. The enterprise will be known as the Smith Hosiery Mill.

Sakura Mills, Inc., have purchased the Sakura Silk Co., Kane, Pa., operating 19 knitting machines on jersey cloth. W. R. Friedman is president of the company.

Moss Hosiery Co. will set up in Lewistown, Pa., a battery of 40 full-fashioned machines which were to have been set up in the former Taubel Hosiery Mill, Riverside, N. J. James Kane who operates a hosiery finishing plant at 4319 North Third St., Philadelphia, is interested.

Klearspun Hosiery Co., Philadelphia, has acquired the plant of the **Lincoln Hosiery Corp.,** Ontario and I Sts. Of the 64 full-fashioned machines, 75% are now in operation. Product will be sold in the gray.

Apex Hosiery Co., Philadelphia, is entering on a modernization program which involves the scrapping of old machinery and replacement with new machines from Textile Machine Works.

Reading (Pa.) **Full-Fashioned Hosiery Mills** have purchased the equipment of the Belle Terre plant of the **Fairy Silk Mills,** including 12 full-fashioned machines for $40,000.

Quality Hosiery Mfg. Co., Murfreesboro, Tenn., recently organized, has taken over former local factory of the Putnam Garment Mfg. Co., and will improve and equip for new knitting mill. Plant is reported to cost about $25,000, with machinery. Oliver N. Norris, formerly of Sunshine Hosiery Mills, is president of new company, and G. A. Maxwell, secretary and treasurer.

Regal Silk Hosiery & Knitting Mills, Inc., Petersburg, Va., expects to begin operations Dec. 15. Nine knitting machines will constitute the initial equipment, and others will be added later. Full-fashioned silk hosiery will be manufactured.

Petersburg, Va. It is reported locally that efforts are being made to establish a full-fashioned hosiery mill. A. K. Deal and J. A. Lewis are behind the movement. Mr. Lewis was formerly with Du Pont Rayon Co. at Hopewell.

Marinette (Wis.) Knitting Mills have awarded general contract to Theodore Klaver & Son, Marinette, for new one-story addition, 60x80 ft.

Code Felt & Knitting Co., Perth, Ont., has begun construction of a new two-story addition, 42x75 ft., for which general contract recently was let to R. T. Parks, Wilson St., Perth, estimated to cost about $25,000, with equipment.

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TEXTILE WORLD'S

Processing Digest

AGAIN the U. S. Institute for Textile Research demonstrates its aggressiveness by initiating Research Project No. 1. The conference on warp sizing, held last May under the auspices of the Institute, demonstrated that there are few textile subjects for research which are as likely to pay as quick or as large returns on the investment as will a scientific investigation of sizing and desizing procedures. The conference adjourned with the understanding that the Institute would promote this study. The Institute assumed that responsibility. To finance the investigation it is soliciting funds from those textile organizations which should benefit from the study. The number of contributors will be restricted to 50 at $100 each for two years. Companies cooperating in the financing will have the advantage of receiving confidential reports of results as the research progresses. The immediate objects of the study are to determine what sizing procedure is most satisfactory as regards ease of application and effect on the yarn and to find the best desizing process.

Already several gray-goods mills and finishing plants have qualified as sponsors of the project. We have no fear that the textile industry will fail to support the Institute in its initial undertaking of this type. We only urge to haste those manufacturers and finishers who wish to avail themselves of this opportunity to prove the value of cooperative research both to the individual plant and the industry as a whole.—*Editor.*

A.A.T.C.C. Annual Meeting

The technical program scheduled for the annual meeting of the American Association of Textile Chemists & Colorists, held Dec. 7 and 8 in New York follows: At the Friday evening symposium on rayon speakers were H. D. W. Smith, A. M. Tenney Associates; E. H. Benzing, American Bemberg Corp.; J. B. Quig, DuPont Rayon Corp.; Dr. J. F. X. Harold, consulting chemist. Also at this session, Leroy Stewart, Dow Chemical Co., gave a lecture, illustrated by motion pictures, on the Recovery of Bromine from Sea Water. Subjects discussed on Saturday were Absorption of Moisture by Aeronautical Textiles, G. M. Kline, U. S. Bureau of Standards; Fading of Dyeings in Radiation of Different Intensities, W. D. Appel, U. S. Bureau of Standards; Applications of Fluorescence Analysis, A. E. Sampson, Calco Chemical Co.; Calgon, C. D. Munter, Hall Laboratories, and E. B. Bell, Calgon, Inc.; The New Textile Technology, E. R. Schwarz, Massachusetts Institute of Technology; Progress of Textile Research in the South, Chas. B. Ordway, Alabama Polytechnic Institute; Selling, A. R. Thompson, Jr., Ciba Co., Inc.; Quantitative Analysis of Fiber Mixtures, R. T. Mease, U. S. Bureau of Standards; Some New Applications of Surface Chemistry to Textile Processes, H. A. Neville, Lehigh University; Mechanism of Dyeing, Robt. E. Rose, E. I. du Pont de Nemours & Co.; Recent Developments in Tensile Testing Machines, David Scott, Henry L. Scott Co.; Bleaching with Chlorine, W. L. Savell, Mathieson Alkali Works; Inconel, an Alloy for Textile Wet Processing Equipment, F. L. LaQue, International Nickel Co.; Effect of Alkalis on Wool, Milton Harris, A.A.T.C.C. Research Associate; Aluminum Chloride Carbonizing, B. A. Ryberg, A.A.T.C.C. Research Associate.

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Hold Hearing on "Spun-Dyed" Rayon

Declaration of an emergency in the rayon yarn dyeing industry and restraining of the Industrial Rayon Corp. from selling "spun-dyed" rayon yarns at less than the cost of undyed yarn plus the lowest reasonable cost of dyeing such yarn by the most efficient rayon dyer in the industry were recommended at a public hearing, by the Code Authority for the Textile Processing Industry, conducted by the National Industry Recovery Board, Nov. 27, in Washington. It was recommended also that it be declared that the dyeing and primary distribution of so-called "spun-dyed" rayon yarn is governed by the code of fair competition for the Textile Processing Industry. Advocating these proposals at the hearing were Stanley Stager, president, J. W. Schulze, secretary, and Harold R. Lhowe, counsel of the Textile Processing Code Authority; and Royal Little, of the Franklin Rayon Corp. Opposing them were O. Max Gardner, counsel for the Rayon and Synthetic Yarn Producers; J. W. Reavis, counsel for Industrial Rayon Corp.; and Mathew H. O'brien, representing Celanese Corp. of America.

Mr. Stager asserted that the emergency results from the fact that Industrial Rayon announced in August that it was in a position to supply fast-color dyed rayon yarn on cones for 5c. a pound above the price of white yarn. While he did not challenge any claim made by the producer as to the cost of dyeing, he stated his belief that other factors, such as merchandising and stocking problems, will render the process economically impractical and that selling at the present price constitutes unfair competition. Mr. Lhowe contended that the dyeing or coloring of rayon yarn wherever carried out is under the jurisdiction of the Textile Processing Code, pointing out that at their earlier code hearings the yarn manufacturers emphasized that they produced a textile raw material and said nothing which would indicate that any dyeing or other processing should be included in their code. Figures presented by Mr. Schultze place the total amount of rayon yarn dyed in 1933 at 10,000,000 lb. Yarn dyers, he stated, have long ago given up the idea of stocking dyed yarn in any large quantities—a procedure which he believed would be necessary in the case of "spun-dyed" yarn. Mr. Little declared that several years ago Courtaulds Ltd., England, began the commercial production of dyed rayon yarn, but was forced to abandon the process because of merchandising difficulties. He proposed that NRA Board declare an emergency and establish a cost of 15c. a pound plus drug cost as the lowest reasonable cost of dyeing rayon yarn.

Governor Gardner hailed "spun-dyed" yarn as the latest of a long list of improvements in rayon, and stated the view of industry is that it is not the intent of the National Recovery Act to bind or fetter research, invention, and technical improvement. Evidence was introduced by Mr. Reavis in an attempt to show that "Dull-Fast" yarn, the name under which Industrial Rayon is supplying "spun-dyed" yarn, is superior to rayon dyed in the usual manner, and that introduction of this yarn at the low prices made possible by the new process has benefited the consumer and opened new fields for the use of rayon. Mr. Reavis argued that "Dull-Fast" yarn is not a dyed yarn, but is just as natural a yarn as is uncolored yarn, and hence its production does not come under the meaning of the term "dyeing" as used in the Textile Processing Code. He stated, also, that since at a price of 5c. a pound higher than uncolored yarn, "Dull-Fast" yarn yields a higher percentage of profit than white yarn, the "lowest reasonable cost of production" is the cost to Industrial Rayon. Mr. Reavis asserted further that since it was first introduced only 30,000 lb. of "Dull-Fast" yarn has been sold, which corre-

sponds to about 1% of the total amount which has been yarn dyed in the same length of time; therefore it is his contention that no emergency has occurred and the complaint of the textile processors is based on fear of the future and not on present facts. Mr. O'brien said that in principle he adopted, agreed upon, and endorsed all of the statements made by Mr. Reavis.

A. Henry Thurston, acting deputy administrator, conducted the hearing.

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Dye Strike Ends

The 6-week strike affecting 25,000 workers and practically every silk and rayon dyeing and printing plant in northern New Jersey, New York City, and Long Island, ended Dec. 3 on the basis of a 2-yr. contract between the Institute of Dyers & Printers and the Federation of Silk & Rayon Dyers & Finishers of America. The agreement, which was reached on Dec. 2 and is to remain in force until Aug. 31, 1936, provides for a maximum work week of 36-hr., minimum wage rate of 66c. per hour for male workers and 48c. per hour for female workers, union recognition, and reemployment of all workers without discrimination. Also included in the contract are clauses governing conditions of work and providing for arbitration of differences between employers and employees. Although the workers' demands for a strictly closed shop were not successful, the agreement stipulates that no employer shall hinder the union in its efforts to organize the workers in the industry and that in the event of a vacancy in a position previously held by a union member, the employer shall replace such employee only by another member of the union. Following is a continuation of the chronology of important events connected with the strike which appeared in our November issue:

Nov. 5—Workers' strike committee turns down employers' offer of 36-hr. week, $23 minimum weekly wage, and right to organize.

Nov. 9—Tentative agreement reached after 20-hr. conference between owners and union officials calls for 36-hr. week, minimum wage of 66c. an hour for men and 48c. for women, no strikes or lockouts for period of 2 yr., and establishment of labor relations board.

No. 10—Strikes at mass meeting prevent vote on terms proposed yesterday.

Nov. 13—Herman Geller, president, International Dye & Print Works, announces that he will move equipment from Paterson to plant of Perrennial Dyeing Co., West Warwick, R. I., which he also heads.

Nov. 16—United Textile Print Works, Long Island City, N. Y., makes individual strike settlement with Local 1790, United Textile Workers of America, on basis of "preferential" shop and minimum wage of $27.50 for 40-hr. week.

Nov. 19—Separate agreements with U.T.W. on basis of preferential shop and minimum wage rate of $1 an hour effected by screen-printing companies in New York now total 13.

Nov. 22—William Willheim Co., Inc., Passaic, signs 2-yr. contract granting union a closed shop and agreeing to employ only members in good standing of the Federation of Silk & Rayon Dyers of America.

Nov. 24—Citizens of Paterson, through the Service Clubs' Council, formulate plans for institution of action in the Court of Chancery which would compel employers and strikers to arbitrate.

Nov. 26—Robert Wyder, president, Textile Dyeing & Printing Co., announces his intention of moving plant from Paterson.

Dec. 3—Tentative agreement on basis similar to that first reached on Nov. 9 and approved Dec. 1 by joint employer-employee committee ratified by Federation of Silk & Rayon Dyers & Printers and by Institute of Dyers & Printers.

Dec. 5—Price increases running from 15 to 25% for printing and 30 to 40% for dyeing listed by silk and rayon finishers.

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Industry Briefs

Franklin Institute, Philadelphia, has announced that James G. Vail, vice-president and a director of **Philadelphia Quartz Co.** will deliver a series of popular lectures on sodium silicates on Dec. 26, 27 and 28 at 3 p.m.

A net profit of $66,040 for the year ended June 30, 1934, against $29,302 for the preceding year is reported by Arnold Print Works.

Rayon mixtures and all-rayons are included in an anti-crease line displayed last month in New York by Tootal, Broadhurst & Lee Co. The group comprises taffetas, and a smart new "woolly" rayon made from rayon and cotton yarn.

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Association Notes

Albert Scott, president of Lockwood Greene Engineers, Inc., who recently submitted his resignation as president of the National Association of Textile Finishers of Textile Fabrics, due to his new duties as president of Rockefeller Center, New York, has withdrawn his resignation which was to have become effective before Jan. 1. In the event that this decision does not prove final, it is now believed that Mr. Scott will give the Finishers Association ample time to select a successor.

Paul Haddock, of Charlotte, N. C., was elected chairman of the Piedmont section, A.A.T.C.C., at the section's annual meeting held Nov. 10, at Charlotte; other officers chosen were: Chester Eddy, of Greenville, S. C., vice-chairman; Tom R. Smith, Belmont, secretary; and Hobert Southern, treas. Technical papers were presented by Dr. Graham Cook, Albright College, Reading, Pa., on the dyeing of silk hosiery; and by James G. Vail, vice-president, Philadelphia Quartz Co., Philadelphia, on the use of silicates in the textile industry.

The Southeastern Section met Nov. 10, in Atlanta, Ga. Technical papers on "History of Indigo Dyeing" and "The Photo-Electric Cell in Color Matching" were presented by E. J. Lefort, Ciba Co.; and E. S. Lammers, Westinghouse Electric & Mfg. Co., respectively. A moving picture, "Velvet, the King of Fabrics," was shown by B. A. Alexander, Collins & Aikman Corp.

Rayon printing was discussed from various viewpoints at the Nov. 23 meeting of the New York section, A.A.T.C.C., held at Paterson, N. J. Speakers included Philip H. Stott, of the technical laboratory, Dyestuffs division, E. I. duPont deNemours & Co., whose topic was "Preparation of Rayon Piece Goods," and Morris Blackman, of Textile Dyeing Corp., on "Print Shop Procedure."

Determination of calcium soap on textile fibers was discussed Nov. 16 by Dr. Bernard H. Gilmore, of Mellon Institute of Industrial Research, before the Northern New England section of the A.A.T.C.C. in Boston.

"Agers and Ageing" and "History, Manufacture and Practical Uses of Hydrosulphite Compounds" were the topics on which Fred Tattershall of American Printing Co., and B. B. Fernald of U. S. Oil Co., respectively, spoke Nov. 23 at the meeting of the R. I. section of the A.A.T.C.C. in Providence.

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Processing Plant News

Cherry Cotton Mills, Florence, Ala. The dyehouse of this firm was destroyed by fire recently, loss was estimated at $25,000.

Sterling Textile Printers, Inc., have been incorporated by James & Klein, 55 West 42d St., New York.

Rockland Dyeing & Processing Corp., West Haverstraw, N. Y., has been organized with capital of $20,000, to operate a local dye and finishing works. Company has arranged for lease of space in former plant of Rockland Finishing Co., now held by the Garnersville Holding Co., and will occupy at early date. Incorporators of new company include H. Sidney Landau, 1362 East Thirteenth St., and Hamilton Lieb, 1429 President St., both Brooklyn, N. Y.

Bergen Silk Dyeing Corp., Englewood, N. J. Mill of this company, operated by the Imhoff-Berg Silk Dyeing Co., Paterson, N. J., has been sold to the Haban Holding Corp., Englewood, for a consideration of $51,000.

International Print & Dye Works, Paterson, N. J., is planning removal to West Warwick, R. I., where its equipment would be merged with the **Perennial Print & Dye Works.** Herman Geller is president of both companies.

Gaston Mill, No. 1, Cherryville, N. C., has installed dyeing machinery.

Dixie Mercerizing Co., Chattanooga, Tenn., is constructing a penthouse which will cost $4,250.

TEXTILE WORLD'S

Engineering Digest

IN these days of codes and processing taxes and other elements of higher costs, there is an added incentive to develop every bit of plant efficiency possible. Too often, this general thought is applied to productive operations only. It is equally applicable to the power plant.

The most casual study of the exhibits at the Power Show this month should have convinced an observer that the manufacturers of equipment in this field have made rapid advances. Consequently it is up to the individual industrial concern to check and recheck the efficiency of its power plant, in order to make sure that it is not overlooking any of the new cost-reducing developments.—*Editor.*

New Equipment for Textile Plant at Power Show

Progress made during the last two years in the design of power-plant and auxiliary mill equipment was shown at the 11th National Exposition of Power & Mechanical Engineering, held Dec. 3 to 8, in New York.

Perhaps the exhibit directed most specifically to the textile industry was the one demonstrating the application of the pivoted motor-base for short-center, flat-belt drives to the three well-known makes of cotton spinning frames. The latest of several stages in the evolution of this short-center drive resulted from the necessity for providing a base adaptable to reversing motors, which are often used to permit changing the direction of twist; and now the manufacturer recommends the new design for all spinning-frame installations. This design involves a high shelf supported at three points. Two of the supports consist primarily of compression springs, one at each side of the frame, and these permit the motor to pivot in either direction (as the belt pull may dictate) on the third support, which is a leg located centrally with respect to the frame and at the outer extremity of the shelf. In this case, the motor pulley is located over the driven pulley, with the result that the shelf is high for easy cleaning and convenience of mechanic.

Also demonstrated was a new spinning-frame pulley with demountable rim, which makes possible changing the pulley ratio without removing the entire pulley from the cylinder shaft.

A new variable-speed transmission with hydraulic control permits varying the speed to as fine as ¼ to ½ r.p.m. The control lever on this transmission serves to open or close small valves governing the bypassing of oil.

Another power-transmission development of special interest to mills was so-called textile leak-proof two-piece casing for chain belts running in oil.

A ball-bearing tension pulley for spinning-frame tapes is designed to obviate trouble caused by lint and dirt and will operate for 10,000 hr. without lubrication. New double-seal ball bearings (felt inclosures on both sides) keep grease in and dirt out and relieve the machinist of much closure work. Improved belting was shown, with emphasis on the tension-cemented type.

The increasing attention which is being paid to control of power-plant and mill operations was reflected in the wide variety of new instruments for indicating, recording, and controlling temperatures, pressures, CO_2, etc. One of the most recent developments in this line is a steam flow-meter with uniform scale chart giving direct readings of temperature, pressure, and flow, and compensating for pressure changes in the line. Another instrument of same make is a combined temperature, humidity, and pressure recording and control device with built-in relay and calibrated scales. Several exhibitors featured long-distance recording instruments for temperature, pressure, liquid level, etc., operating on the two-wire principle.

Of particular interest to textile men was a time-temperature alarm developed primarily for dyehouse applications. The manufacturer of this equipment also displayed a direct-setting humidity controller of the electric-contact-making type, and a low-range pressure gage for use on condensers, for recording draft on boilers, etc. Two new instruments featured by another exhibitor are a roll-pressure recorder originally brought out for use in paper mills but believed to have numerous applications in the textile industry, and a temperature regulator intended particularly for use where the time-lag in the equipment under control causes difficulty.

Making its initial appearance at this exposition, was a small zeolite water softener which can be attached directly to any faucet. The softener is adapted for use in homes, laboratories, and other places where requirements for soft water are relatively small.

In the valve exhibits evidence of the recent trend toward the use of renewable seat rings and disks could be noted. Examples included regrinding valves with nickel-alloy seat rings and disks and hard-metal plug-type globe valves with corrosion-resisting disks and seats. A new line of 18-8 valves and fittings in all types and a wide range of sizes was displayed. A continuance of the strong trend toward the inverted-bucket type of steam trap, with its air-elimination and self-cleaning, was in evidence.

Among the electrical exhibits was shown a new vertical-motion thrustor giving more positive operation than previous models. New high-intensity mercury-vapor lamps (400 watt, 35 lumens per watt) are suitable for heights of 30 to 50 ft. A ball-bearing, portable industrial vacuum cleaner, equipped with 1-hp. motor, deposits all heavy dust and dirt, metal scraps, filings, etc., directly into a steel tank.

Tamper-proof pick and hank counters, both in the two-shift type, and a compression clamp which allows the worm drive of a pick counter to be installed without drilling the loom shaft were featured by one exhibitor.

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The Cost of Inadequate Lighting

Accidents traceable to poor lighting cost employers about $200,000,000, during 1933, in wage losses, medical expense and insurance, based on statistics of the National Safety Council, according to D. W. Atwater, of Westinghouse Lamp Co. and secretary of the Illuminating Engineering Society. Of the 1,269,500 occupational accidents recorded in the United States last year, about 15% were due to poor lighting. For every dollar paid out by insurance companies in compensation for claims, the employer must pay four dollars for hidden or indirect costs, according to Mr. Atwater.

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A Couple of Tricks

Commenting on the ingenuity of engineers, John Talbot, writing in *Power*, gives the following examples, among others:

1. Some water pipes were frozen in a place where it was impractical to use a blow-torch to thaw them out because of the fire hazard. So the engineer sent for his wife's heating pad and fan heater and the pipes thawed very nicely.

2. An engineer wanted to know the extent to which certain electric lines operated, but his requisition for a set of meters didn't go through because the management thought the money could be used to better advantage elsewhere. The engineer grumbled a bit and then went out and bought himself some self-starting synchronous electric clocks. He hooked these in on the lines that operated intermittently. Every time the juice went on the clock started, so all that it was necessary to do was to set the clock at 12 at the start of the day and then see what time it said at the end of the day or shift.

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Textile Engineers Hold Annual Meeting

Lubrication of textile equipment, opportunities for cost reduction in textile manufacturing and selling, and the stretch-out system were discussed at the annual meeting of the textile division, American Society of Mechanical Engineers, held Dec. 5, in New York. William L. Conrad, chairman of the division, presided. Discussions of the several subjects were opened by papers by C. H. Baxley and C. M. Larson, both of Sinclair Refining Co.; Sanford E. Thompson, of Thompson & Lichtner Co., Inc., and John J. McElroy, New England mill executive. A comprehensive abstract of Mr. McElroy's paper will be found on pages 98 and 99 of this issue of TEXTILE WORLD.

In the discussion of lubricants, Messrs. Baxley and Larson described briefly the results of a survey of 150 plants in the cotton and wool divisions to determine if the number of lubricants purchased could be reduced or if those in use could be classified. They then stated that when the data were assembled and summarized, it was found that the oils and greases actually employed fell into a few general classifications. Further study indicated that the fourteen lubricants listed below will meet all requirements in the two branches of the industry mentioned above and that any individual mill may well get along on less than this number:

Textile Oils

Application	*Recommended Viscosity Saybolt Universal*
Spindle oils	60- 80"@100°F.
	80-100"@100°F.
	100-125"@100°F.
General-purpose oils	180-240"@100°F.
	240-300"@100°F.
Powerhouse oils	140-160"@100°F.
	300-320"@100°F.
Comb boxes, looms, and special applications (mineral and compounded)	400-600"@100°F.
	600-900"@100°F.
Steam-cylinder oils (Compounded)	140-160"@210°F.

Textile Greases

Application	*Soap Base*	*A.S.T.M. (Worked) Penetration*
General purpose	Calcium	175 to 250
Plain bearings	Calcium	275 to 350
Twister rings	Calcium	300 (approx.)
Ball and roller bearings	Soda	Number 2 (approx.)

Leading the discussion of the opportunities for reducing textile manufacturing and selling costs, Colonel Thompson first outlined the advances which have already been made along these lines and then pointed at the directions in which further progress can be made. These recommendations he summarized as follows:

1. The greatest opportunity for cost reduction in textiles lies in the lowering of retail selling costs through the further development of lower-price retail stores.
2. In the distribution of textiles to the retailer or to the goods manufacturer, the most important opportunity for improvement lies in coordination between manufacture and sales and the development of more scientific methods in inventory control and selling.
3. Salesmen's compensation is a matter of vital moment because of the opportunities for enlarged sales, increased profits, and lower selling costs.
4. New products utilizing textile material and improved standard products developed by research offer a field for expansion.
5. Further introduction of new machines and equipment which have been brought out during the last ten years affords means for cost reduction in textile manufacture and at the same time furthers the expansion of "producer goods" manufacture.
6. Development of the best methods of management and control in the operation of the mill affords opportunity for reduction in manufacturing costs.

Officers of the division elected for the ensuing year are as follows: Executive committee—Harry D. Learnard, chairman; Mark A. Golrick, Jr., secretary; W. L. Conrad, C. H. Ramsey, A. W. Benoit, Wendell Brown; associates—Henry M. Burke, Paul Merriam, Albert Palmer, John McPherson.

At the A.S.M.E. management division meeting on Dec. 6, stretch-out problems were again discussed following a paper by Wilmer R. Wright, of Stevenson, Jordan & Harrison, New York, in which Mr. Wright offered a formula for determining the time which each machine unit must remain 'stopped awaiting attention while the operator is busy giving attention to some other machine unit. This formula, which is based on the theory of probability and which engineers declared might be modified for use in the textile industry, is as follows:

$$I = 50[\sqrt{(1+X-N)^2+2N} - (1+X-N)]$$

in which I is the waiting time (called "interference time") expressed in percentage of attention time, X is the ratio of machine time to attention time, and N is the number of machine units assigned to one operator. Mr. Wright showed a graph based on this formula, from which the waiting time can be obtained quickly for a given set of conditions. He also showed a graph for determining the economic number of machine units to be assigned to one operator, taking waiting time into consideration.

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Engineering Trade News

Johns-Manville has announced that its recently formed subsidiary, Johns-Manville Credit Corp., through cooperation with the Federal goverment, is now able to finance industrial repair and modernization work at the lowest carrying charges ever offered in a deferred payment plan of this kind. Cost of financing is $5 per $100 per annum.

Westinghouse Electric & Mfg. Co. has appointed F. R. Kohnstamm as manager of the lighting division.

Link-Belt Co., Chicago, has acquired the manufacturing and sales rights to the burner formerly handled by Modern Coal Burner Co., a subsidiary of Peabody Coal Co.

Oster-Williams, Cleveland, manufacturers of pipe and bolt threading equipment, have opened a New York office at 292 Lafayette St.

Spraco, Inc., Somerville, Mass., to avoid confusion, has adopted the name of the parent company, Spray Engineering Co. The change in no way affects the charter, personnel or business policy of the company.

Acme Steel Co., Chicago, bale ties, etc., has appointed G. R. Easley as sales representative for South Carolina. He will make his headquarters at 107 Manly St., Greenville.

Lukens Steel Co., Coatesville, Pa., has appointed Thomas T. Watson development and service metallurgist. Mr. Watson has been with the company since 1931 and will be engaged principally in service and sales work in connection with Lukens Nickel-Clad Steel.

L. H. Gilmer Co., Philadelphia, belting, has appointed Earl V. Snyder as district sales manager for New York. To take care of expanding business, the company is increasing its space facilities.

Duriron Co., Inc., Dayton, Ohio, has raised M. L. Bettcher from the position of general superintendent to general manager, succeeding Dudley H. Miller, who becomes executive vice-president.

Scholes, Inc., manufacturer of corrosion-resisting equipment and Orange-Hart precision bearings, has consolidated all its offices at the plant, 557 Main St., Orange, N. J.

International Nickel Co., New York, has added David M. Curry to its development and research staff. Mr. Curry will devote his attention to work in the non-ferrous casting field in which he has had extended experience.

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Engineering Mill News

Rhyne-Houser Mfg. Co., Cherryville, N. C., has repainted the exterior of the village dwellings.

Entwistle Mfg. Co., No. 1, Rockingham, N. C., now has sixteen new dwellings under construction.

Hanover Mills, Inc., South Gastonia, N. C., has had its mill office renovated for the winter and a furnace installed.

Woodside Cotton Mills, Fountain Inn, S. C., has built a new addition in which the supply room is housed.

Washington Mills Co., Fries, Va., has installed a new heating system.

Kenwood Mills Ltd., Arnprior, Ont., has erected a new addition for the firm's offices. Space formerly used by the office staff has been enlarged and now provides additional room for raw stock storage.

Code Felt & Knitting Co., Ltd., Perth, Ont., is making substantial additions to its two plants. One boiler of 125 hp. with underfed stoker is being installed.

QUOTATIONS

At close of business, December 1, 1934

Prices cover average qualities unless otherwise stated

Cotton Goods

	Dec. 1	Nov. 1	1933 Dec. 1
PRINT CLOTHS			
27 -in., 64x60, 7.60	4¾	4¾	4⅜
38½-in., 64x60, 5.35	6⅝	6¾	6½
39 -in., 68x72, 4.75	7¼	7⅜	7½
39 -in., 72x76, 4.25	8½	8½	8¼
39 -in., 80x80, 4.00	9	8¾	9
BROWN SHEETINGS			
36-in., 56x60, 4.00	7½	7¼	7⅜
36-in., 48x48, 5.00	6	6	5⅝
37-in., 48x48, 4.00	7¼	7½	6⅝
MISCELLANEOUS			
Drills, 37-in., 3 yd.	9¼	9¾	9½
Denims, 2.20	15	15	15½
Tickings, 8 oz.	19	19	18½
Standard prints	7½	7½	7

Cotton Waste

Peeler comber	14.00
Peeler strip	13.50
White spooler (single)	7.00
Linters (Mill Run Average)	5.50

Cotton Prices

Spot Cotton at:	Dec. 1	Nov. 1	For Month High	For Month Low	1933 Dec. 1
New York	12.75	12.25	12.85	12.25	10.20
New Orleans	12.78	12.34	12.91	12.34	9.85
Liverpool	7.00	6.83	7.07	6.78	5.15

FLUCTUATIONS OF FUTURES

	Closed Dec. 1	For Month High	For Month Low	Closed Nov. 1	Net Change
Dec.	12.46	12.60	12.00	12.00	+0.46
Jan.	12.52	12.63	12.03	12.03	+0.49
Feb.	12.55	12.66	12.06	12.06	+0.49
March	12.59	12.70	12.09	12.09	+0.50
April	12.59	12.72	12.09	12.09	+0.50
May	12.59	12.75	12.09	12.09	+0.50
June	12.55	12.71	12.06	12.06	+0.49
July	12.51	12.68	12.03	12.03	+0.48
Aug.	12.42	.....	.....	.....	.....

AVERAGE PRICE JUNE-JULY SHIPMENT HARD WESTERN COTTON

	F.o.b. New England Middling	St. Middling
1⅛-in.	15.10	15.60
1 3/16-in.	16.35	17.60
1¼-in.	19.10	21.10

Based on Mar., 12.60.

FOREIGN COTTONS

Alexandria Exchange, Nov. 30	
January, Sak.	15.85
February Uppers	13.24
Shipment c.i.f. Boston (Tariff not included)	
Medium Sak.	26.50
Medium Uppers	24.00
(By Anderson, Clayton & Co.)	
India Rough, Calcutta Camilla	9.00
China Tientsin No. 1	11.50

Quotations on cotton cloth and cotton yarn as given on this page include the cotton processing tax. Cotton waste prices also include the processing tax but of course the prices on various raw cottons do not include it.

Cotton Yarn (Nominal)

(Tax Added)

CARDED (Average Quality)

Double Carded 2c—4c., higher according to quality.

SINGLE SKEINS OF TUBES (Warp Twist)

4s to 8s	$0.26½	20s	$0.29½
10s	.27	24s	.31½
12s	.27½	26s	.32½
16s	.28½	30s	.34½

TWO-PLY SKEINS AND TUBES

8s-2	$0.27	20s-2	$0.30
10s-2	.27½	24s-2	.32
14s-2	.28½	30s-2	.35
16s-2	.29	40s-2	.41

SINGLE WARPS

10s	$0.27½	20s	$0.30
14s	.28½	24s	.32
16s	.29	30s	.36

TWO-PLY WARPS

8s-2	$0.27½	20s-2	$0.30½
10s-2	.28	24s-2	.32½
14s-2	.29	30s-2	.35½
16s-2	.29½	40s-2 ordin.	.41½

HOSIERY CONES (Frame Spun)

8s	$0.26½	18s	$0.29
10s	.27	20s	.29½
12s	.27½	22s	.30
14s	.28	24s	.31
16s	.28½	26s	.32

COMBED PEELER (Average Quality)

TWO-PLY—(Knitting Twist) Cones

20s-2	$0.36	50s-2	$0.49
30s-2	.41	60s-2	.54
40s-2	.44	80s-2	.73½

WARPS, SKEINS AND CONES

TWO-PLY—(Warp Twist)

20s-2	$0.36½	50s-2	$0.50
30s-2	.41½	60s-2	.55
36s-2	.43	70s-2	.65
40s-2	.45	80s-2	.75

SINGLES

14s	$0.34	38s	$0.44
20s	.36	40s	.45
28s	.39	50s	.49
30s	.40	60s	.54

MERCERIZED CONES—(Combed, Ungassed)

30s-2	$0.52	60s-2	$0.70
40s-2	.57	80s-2	.96

Raw Silk

	Prices Nominal 13/15 White	20/22 White	20/22 Yellow
Special Grand, 85%	$1.57½	$1.35	$1.24
Grand XX, 83%	1.45½	1.33	1.22
Special Crack, 81%	1.40	1.31	1.20
Crack XX, 78%	1.35	1.30	1.19
Extra, Extra, 73%	1.33	1.29	1.17
Best Extra, 68%	1.31	.....	.....

RAW SILK EXCHANGE

	Nov. 30	Nov. 1	For Month High	For Month Low	Net Change
Dec.	1.24½	1.16	1.25½	1.16	+0.08½
Jan.	1.24½	1.16½	1.27	1.16½	+0.08
Feb.	1.24	1.16½	1.27	1.16½	+0.07½
March	1.25	1.17	1.28	1.17	+0.08
April	1.25	1.18	1.29	1.18	+0.07
May	1.27	1.18	1.29½	1.18	+0.09
June	1.27	1.18	1.29½	1.18	+0.09

Silk Yarns

Hosiery tram 5thd. Japan, 85%	$2.25
Hosiery tram, 5thd. crack XX, 78%	2.00
60/2 spun silk	2.95

RAYON WASTE

Thread (for garnetting)	13.00

Wool

OHIO, PENNSYLVANIA, ETC. (GREASE)

Fine delne	$0.26 –$0.28	¾ blood	$0.29 –$0.30
Fine clthg	.22 – .23	½ blood	.27 – .28
½ blood	.28 – .29		

TEXAS AND CALIFORNIA (CLEAN)

Texas, 12 months	$0.71 –$0.73
California, Northern	.62 – .64

MONTANA, IDAHO, WYOMING (CLEAN)

Staple fine	$0.75 –$0.77
Staple ½ bld.	.72 – .75
Fine and fine medium (original bag)	.71 – .73
¾ blood	.65 – .66
¼ blood	.60 – .62

EASTERN SCOURED PULLINGS

A.A	$0.73 –$0.75	B-Super	$0.55 –$0.58
A-Super	.63 – .65	C-Super	.50 – .52

CARPET WOOL (Nominal)

Aleppo (clean)	$0.18 –$0.21
Sining	.11 – .15
China filling (clean)	.10 – .14

Tops and Noils

TOPS—BOSTON

Fine (64-66s)	$0.93 –$0.95
Half-blood (60-62s)	.85 – .86
Aver. ¾ blood (56s)	.78 – .80
¼ blood (50s)	.71 – .73

NEW YORK TOP FUTURES

	Closed Nov. 30	For Month High	For Month Low	Closed Nov. 1
Dec.	78.5	80.3	76.8	78.0
Jan.	78.9	80.2	77.1	78.2
Feb.	79.5	81.0	77.6	78.4
March	79.6	81.1	77.1	79.0
April	79.7	81.5	77.6	79.2

TOPS—BRADFORD ENG. (Dec. 1)

Fine (64s)	24½d	¾ bld. (56s)	18½d
½ bld. (60s)	22½d	¼ bld. (50s)	14½d

NOILS—BOSTON

Fine	$0.51 –$0.53	¾ bld.	$0.43 –$0.45
Half bld.	.46 – .48	¼ bld.	.38 – .42

Worsted Yarns

ENGLISH SYSTEM WEAVING

2-20s 44s	$0.95 –$0.97½	2-36s 58s	$1.30 –$1.32½
2-30s 46s	1.02½– 1.05	2-40s 60s	1.35 – 1.37½
2-30s mixes	1.35 – 1.40	2-50s 64s	1.47½– 1.50

ENGLISH SYSTEM KNITTING

2-20s 44s	$0.90 –$0.92½	2-20s 60s	$1.15 –$1.17½
2-20s 50s	.95 – .97½	2-20s 64s	1.20 – 1.22½

FRENCH SYSTEM

1-26s 64s	$1.15 –$1.20	2-40s 64s	
1-30s 64s		Zephyrs	$1.37½–$1.42½
warp	1.35 – 1.40	2-50s 66s	1.55 – 1.60

Domestic Rayon (Skeins)

VISCOSE PROCESS

Denier	Filament	Price	Denier	Filament	Price
50	14	$1.15	150	24-40	$0.55
75	30	.90	150	60	.60
100	40	.75	300	44	.45
125	36	.62			

NITRO-CELLULOSE PROCESS

Denier	First Qual.	Denier	First Qual.
75	$0.95 –$1.00	150	$0.60
100	.80 – .85	175	.60

ACETATE PROCESS

Denier	Price	Denier	Price
45	$1.20	100	$0.85 –$0.90
55–65	1.15	120	.70 – .80
75	1.00	150	.65 – .75

CUPRAMMONIUM PROCESS (TWISTED)

Denier	Filament	Price	Denier	Filament	Price
30	24	$1.50	100	75	$0.80–$0.90
75	60	.95–$1.05	150	112	.65– .75

Wishing You A Merry Christmas and A Happy and Prosperous New Year

Robert C. Boger

BOGER & CRAWFORD

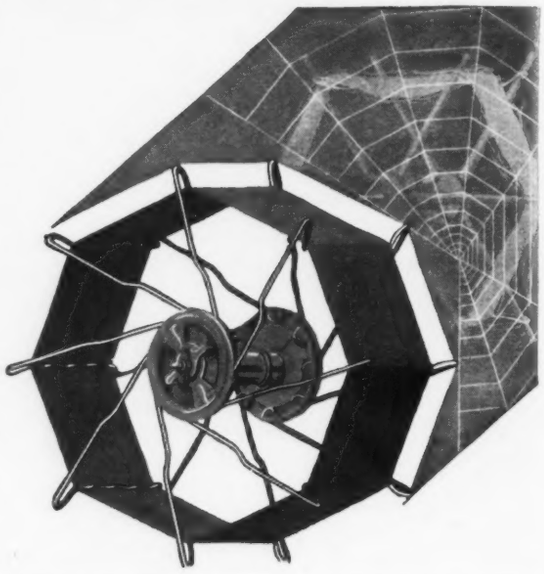
CONTRAST?

A NEGLECTED PROCESS!

BUT QUALITY AND EFFICIENCY IN SUBSEQUENT PROCESSES DEPEND LARGELY ON GOOD WINDING!

NOTHING has been done to improve skein winding for the past 50 years! One of the most neglected, but not the least important, utensils is the swift—the obsolete, century old, wooden swift! Only very few know its vital function, and yet they fail to realize the manifold disastrous conditions which handicap this process, as for instance:

Irregular rotation, spindle vibrations, skein congestion, broken ends, entanglements, inadequate accommodation and irrational placing of the skeins, waste, over-tensioning and elongating of the yarn, continuous repairing, dependability on skilled labor, excessive tension weights, low speed, poorly wound bobbins, etc. . . .



Make your winding safe and independent of special precautions with: BRUGGER'S PATENT SELF BALANCED EXPANDING SWIFTS "PERFECT."

THE SWIFTY "PERFECTS" INCREASE PRODUCTION FROM 20 to 100%! 50 to 80% saving in breakage and entanglements. No waste! No shiners!

BRUGGER WINDING COMPANY

41 East Gowen Avenue **Philadelphia, Pa.**

Dyers, Bleachers and Mercerizers of Cotton Skein Yarn and Warps

GLOBE DYE WORKS

Dyers of Rayon, Spun Rayon, Linen, Ramie and Jute Yarns

Individual Needs Thrive

GLOBE is constantly meeting a wide range of yarn processing requirements. Our ability to regularly cover these needs is a source of satisfaction to a host of weavers and knitters. Unusual flexibility is achieved by employing modern methods and drawing on the fruits of 71 years' experience. Quality is safeguarded by an alert organization which never misses a chance to cooperate.

Use these ample facilities. Let us quote you on your next order.

GLOBE DYE WORKS CO.

Quality Processors Since 1863

KINSEY AND WORTH STREETS : FRANKFORD, PA.

NEWS FLASH!
Famous stylists and designers forecast brilliant prints for spring. Stress need for sharp separation of colors and clear white backgrounds.

SPRING FABRICS that SELL FAST

will be of fresh, sharply defined colors

Here's how you can insure these qualities in your materials!

YOU know, that to a great extent, freshness of color and finish depend on the *soaps* you use. And whether you make silks, rayons or cottons, woolens or hosiery, your fabrics must be freshly colorful if they are to sell fast this spring.

So, the soap you use affects your *profits.* And poorly made soaps, soaps of varying quality, can *wreck profits!* They cause dim, faded colors... uneven finish... off odors ... even reprocessing, which costs money and lowers saleability.

Profits from uniformity

You guard against these losses and *insure true economy* when you use C.P.P. Textile Soaps; Texolive and Arctic Olive Oil Soaps, in their various forms, and Arctic Crystal Soap Flakes.

SOAPS OF UNIFORM QUALITY

Leading mills in every textile field have found these C. P. P. soaps materially aid in securing rich colors and fine finish. We know this is because:

(1) these textile soaps are all the result of many years of practical and scientific research, and,

(2) repeated tests made throughout every step of their manufacture insure their *unfailing uniformity.* And it's *uniformity* that helps you produce *superior quality at lower cost.*

Free technical service

In addition, our C. P. P. Technical Staff is always ready to co-operate with you in overcoming processing difficulties *without charge or obligation.*

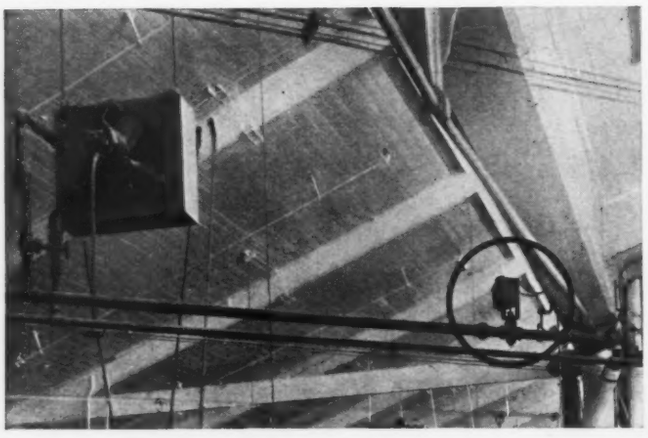
C. P. P. Soaps cost no more in dollars and cents. Their use may save you much money by largely eliminating reprocessing and by increasing the saleability of your goods at *profitable prices!* For full details and prices, *write us today!*

COLGATE-PALMOLIVE-PEET COMPANY

105 Hudson St., Jersey City, N. J.

CHICAGO KANSAS CITY SAN FRANCISCO JEFFERSONVILLE, IND.

UNIFORM



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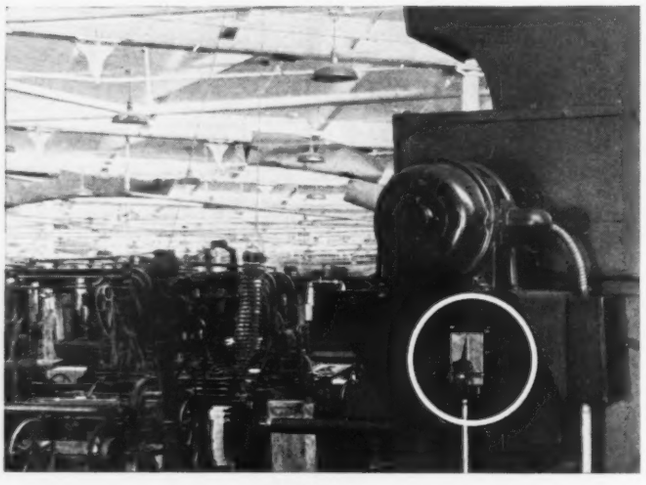

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CONTROLS AT

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Send for booklet listing installations in many New England Mills, and Literature describing Control Equipment.

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BARBER-COLMAN COMPANY OF MASSACHUSETTS, FRAMINGHAM, MASS.

PAIRPOINT

CONES

Regular Surface for Cotton.
Velvet Surface for Silk and Rayon.
Waterproofed — Punched for Humidifying.
Lacquer tips—all colors in single or multiple colors.

Pairpoint Cones stand up under heavy handling. They keep your yarn in perfect shape—ready to go on the machines. Or, if you supply yarn to mills on cones, Pairpoint protects your customer's goodwill by furnishing perfect cones.

We are ready to deliver any type of paper cone on short notice. Pairpoint cones are always right in size, exactly as you specify.

Ask for samples which will be promptly submitted.

P

The PAIRPOINT *Corp.*

NEW BEDFORD MASS.

The Entire Tuffer Family

Wishes You a Merry Christmas

Whatever portion of the Tuffer family you employ, they all wish you a Merry Christmas. We hope that 1935 will be prosperous and successful for you, and that you will permit Tuffer to help you attain that position.

In Card Rooms the textile industry over, Tuffer Card Clothing products have cut down time loss, increased production, and helped to turn out more even stock on every run. Every facility of the Howard Bros. organization is at your disposal to duplicate these savings in your plant.

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Midgley Patented Hand Stripping Cards and Inserted Eye and Regular Wire Heddles

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Cramerton, N. C.
Fine Combed Cotton

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New Bedford, Mass.
Cotton & Spun Rayon

TALLAPOOSA MILLS
Tallapoosa, Ga.
High Quality Carded

WILLIAM WHITMAN COMPANY, Inc.
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HIGH GRADE CARDED COTTON YARNS

FITCHBURG YARN CO.

FINE AMERICAN AND SAKELARIDES COMBED COTTON YARNS

AMERICAN YARN & PROCESSING CO.

APPALACHIAN MILLS CO.

DURENE

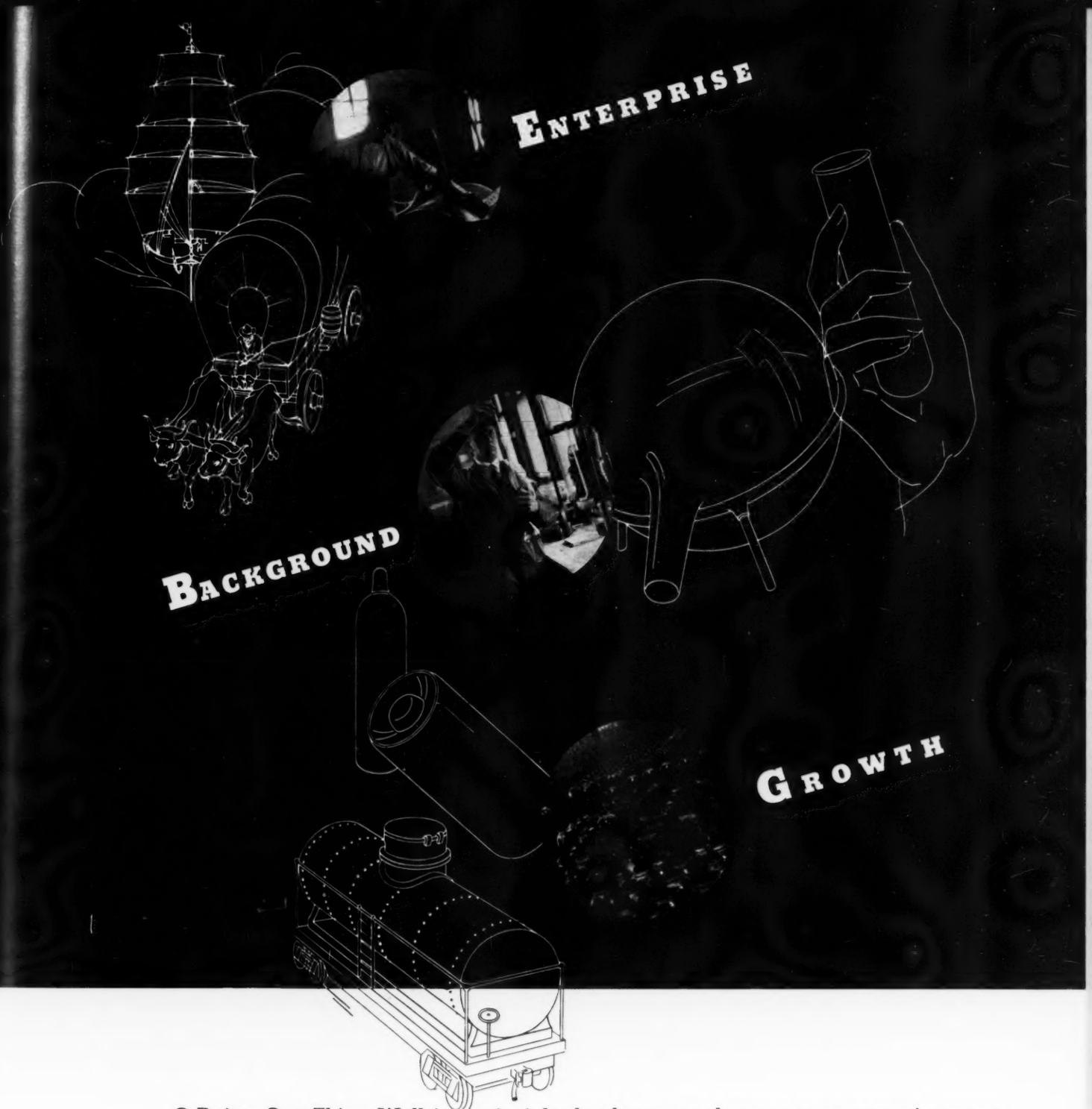
STOCK DYED CARDED COTTON YARNS

LIMERICK YARN MILLS, INC.
WORSTED, MOHAIR & RAYON YARNS SPUN ON WOOL SYSTEM

MANDEVILLE MILLS, INC.
PLY WEAVING AND NOVELTY YARNS

RIVERSIDE & DAN RIVER COTTON MILLS, INC.
(COTTON YARNS)
CARDED YARNS IN HEAVY NUMBERS

J. H. SCHOOLFIELD, *Representative*



● Doing One Thing Well is a principle that has created many great names in every art and trade and industry. The name EBG, outstanding among producers of Liquid Chlorine today, was built by Doing One Thing Well, and nowhere has the soundness of that principle been better illustrated than in EBG Enterprise, Background and Growth. In Enterprise EBG is the pioneer—the first in the country. In Background EBG is the oldest—the most experienced. And EBG has more users today than ever before—its Growth is the reward of service well rendered. Here are sound reasons why EBG is worthy of your highest confidence.

ELECTRO BLEACHING GAS COMPANY
Main Office: 9 East 41st Street, New York, N. Y.
Plant: Niagara Falls, N. Y.

EBG Liquid Chlorine

FIRST IN THE COUNTRY

USS PLYKROME

CONTRIBUTES TO A NEW ERA IN SHIPPING

● The first battery of six all-welded Plykrome tanks to be used for the transportation of flour in bulk. Fabricated by Alloy Fabricators, Newark, N. J.

QUICK, low-cost handling of bulk materials is made possible with this new development of containers on the L. C. L. Principle.

For flour, cement, sugar, dry chemicals and a thousand other materials, this development permits bulk handling, obviating the necessity for sacking . . . and increasing the ordinary carrying capacity per car.

The new-type containers will be handled much as have been containers for package freight. Discharge of the contents of the tanks is accomplished rapidly and economically by means of compressed air.

USS Plykrome is used for the construction of these tank containers so that the interior surfaces will be corrosion-resistant, clean and sanitary. There is no danger of contaminating the contents from the smooth, stainless surface of Plykrome.

For additional information on the means by which you can protect your product and add to the life of your equipment with USS Plykrome, write us of your problems.

U S S CHROMIUM-NICKEL ALLOY STEELS ARE PRODUCED UNDER LICENSES OF THE CHEMICAL FOUNDATION, INC., NEW YORK, AND FRIED. KRUPP A. G. OF GERMANY

Illinois Steel Company

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SUBSIDIARY OF UNITED STATES STEEL CORPORATION

USS STEEL

Security and Perfect Satisfaction

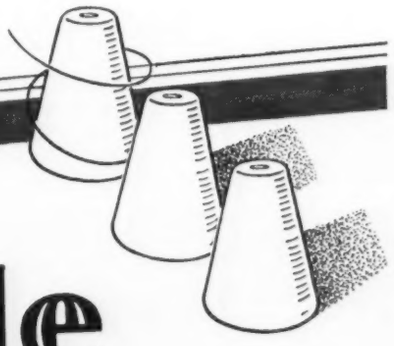
assured by the

Character

OF

Aberfoyle Durene Yarns

CONTRIBUTING greatly to Aberfoyle Durene's reputation for quality, are the tests and findings of our staff of technicians. Never content with "good", they are experimenting and testing constantly . . . striving to develop a more desirable product for you. ¶ No claim has ever been made by this organization which has not been verified by their tests. We strive constantly for the goal of perfection; the development of confidence. ¶ Whatever your yarn requirements are, you may be certain that Aberfoyle Durene will perform its functions creditably. Our name is your guarantee of *security and perfect satisfaction.*

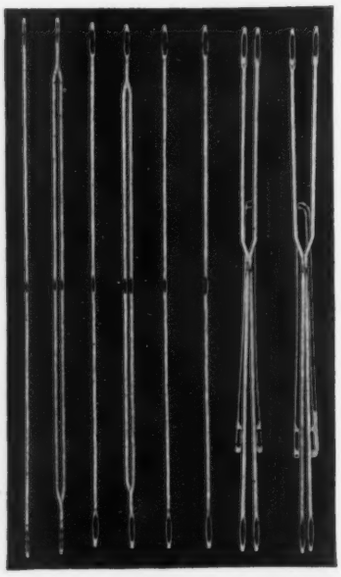


REPRESENTATIVES IN LEADING TEXTILE CENTERS THROUGHOUT THE WORLD

aberfoyle

MANUFACTURING COMPANY

123 SOUTH BROAD STREET, PHILADELPHIA, PA.



What to seek in a HEDDLE

1st. It should be designed for the particular construction of a fabric regardless of texture.

2nd. It must fully take care of the size and respective fibre of the warp yarn.

3rd. The length, size of wire and formation of the eye must be in absolutely correct proportion for the fabric to be woven.

4th. The finish of the heddle must be absolutely 100% in order to avoid obstruction and chafing.

All our flat Steel Heddles are so designed and made.

Send for "Selecting the Proper Heddle."

Steel Heddle Mfg. Co.

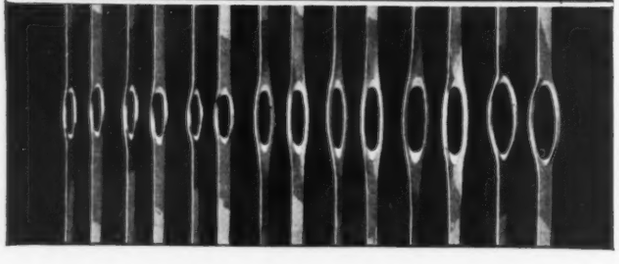
Main Office and Plant
2100 W. Allegheny Ave.,
Philadelphia, Pa.

New England Office
44 Franklin St.,
Providence, R. I.

Southern Plant
621 E. McBee Ave.,
Greenville, S. C.

Foreign Offices
Huddersfield, England
Shanghai, China

Here are shown a few magnified steel heddle eyes, so shaped, turned and polished to permit absolutely free travel of warp ends.



An Able Candidate for Your TOUGH Jobs

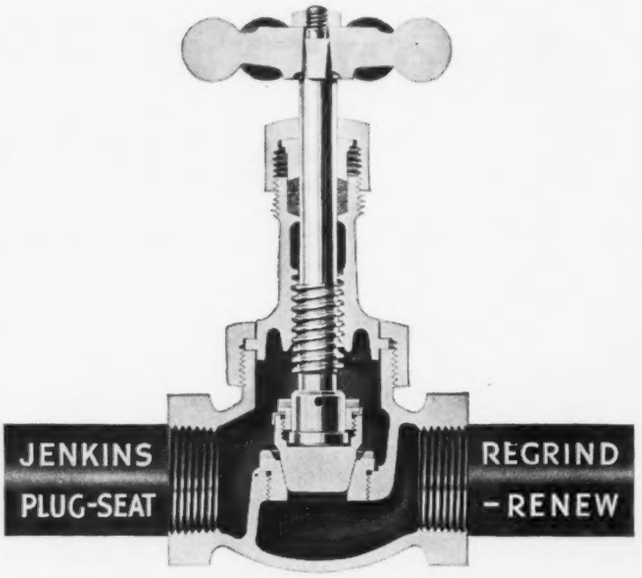


Fig. 956 has all qualifications needed to lick throttling, water column blow down, drain and other tough services

PUT this Fig. 956 to work where extremely severe service is encountered. Its plug type seat, combined with its regrind-renew feature, and the use of nickel-alloy metal for the seat ring and plug, assure good performance.

In addition to these general features, Fig. 956 possesses special advantages which are derived from Jenkins manufacture. Finest metals provide extra strength throughout. For example Jenkins Bronze Spindle Metal has an average tensile strength of 55,000 lbs. per square inch. Machining and gauging to Jenkins' high precision standards assure tightest possible seating and close control of flow.

Both Extra Heavy and Standard Pattern

Besides Fig. 956 for 200 lbs. S.W.P. there is Fig. 976 for 300 lbs. S.W.P. On special order the seat ring and plug can be furnished of bronze, monel, stainless steel or nitrided nitralloy instead of the regular nickel-alloy. See the Jenkins Catalog for full details about these and other Jenkins Regrind-Renew and Regrind Valves.

JENKINS BROS., 80 White Street, New York, N.Y.; 510 Main Street, Bridgeport, Conn.; 524 Atlantic Ave., Boston, Mass.; 133 No. Seventh St., Philadelphia, Pa.; 822 Washington Blvd., Chicago, Ill.; JENKINS BROS., Limited, Montreal; London, Eng.

Jenkins Valves

BRONZE—IRON—STEEL SINCE 1864

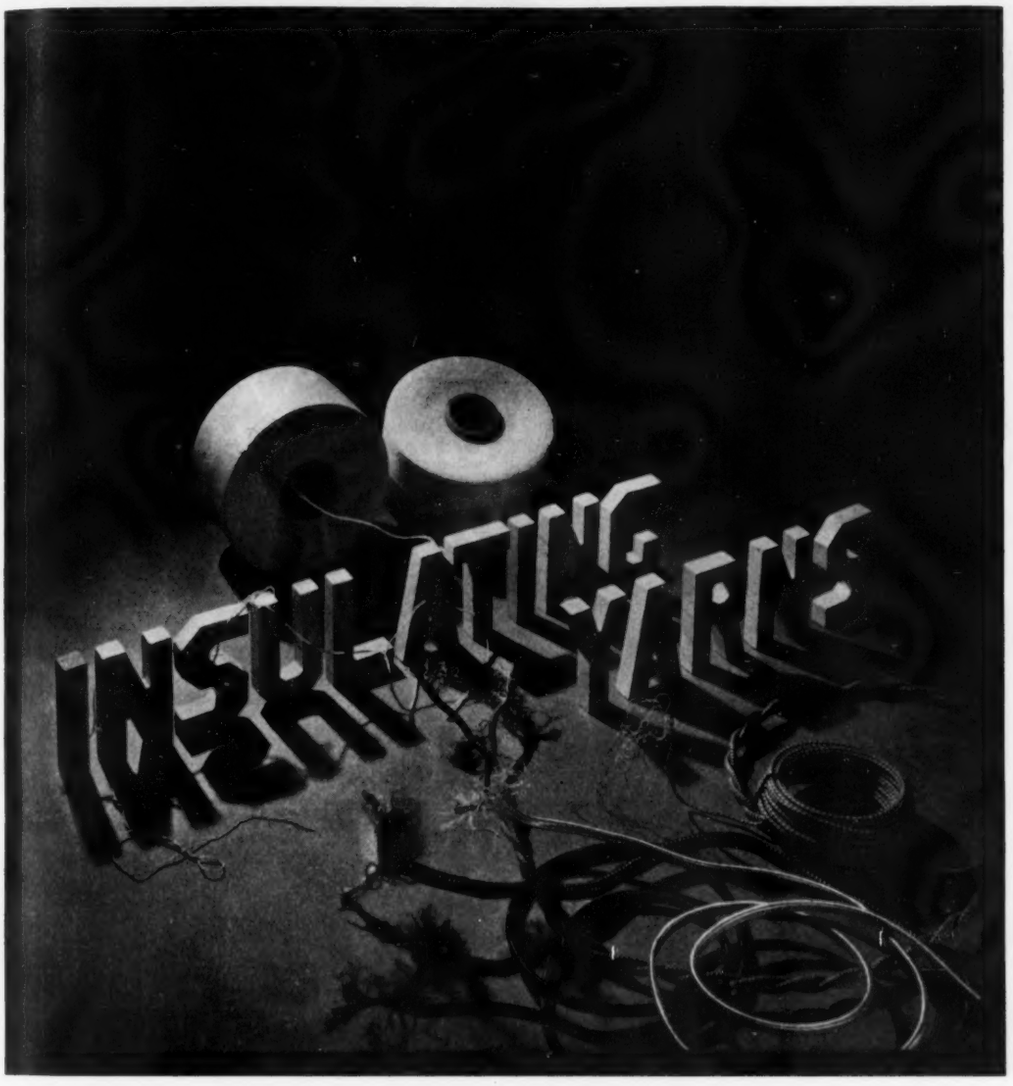
***If it's spun from cotton, it's spun by* QUISSETT MILL**

INCORPORATED 1910

New Bedford, Mass.

Wm. M. Butler, Pres.
Edward H. Cook, Treas.
Thomas F. Glennon, Agent

QUISSETT MEANS QUALITY



Yarns spun by Quissett are known to cover every phase, development and description of the art. No matter what may be the requirement: if it's spun from cotton, Quissett can fill the order. Twists are always accurate and strong . . . all plies. Quissett quality yarns help keep production costs low. Yarns spun from any cotton are available — Egyptian, Peeler, Peruvian, Pima, Sakelarides and Sea Island . . . Numbers from 20's to 100's carded or combed. . . . Also Quitex spun rayon.

QUISSETT MILLS

The STANDARD • COOSA • THATCHER Line

Durene
Preemo Durene
Selo
Combed Peelers
Combed Saks
Carded Peelers
Threads

STANDARD • COOSA • THATCHER • COMPANY
CHATTANOOGA • PHILADELPHIA • CHICAGO • NEW YORK •

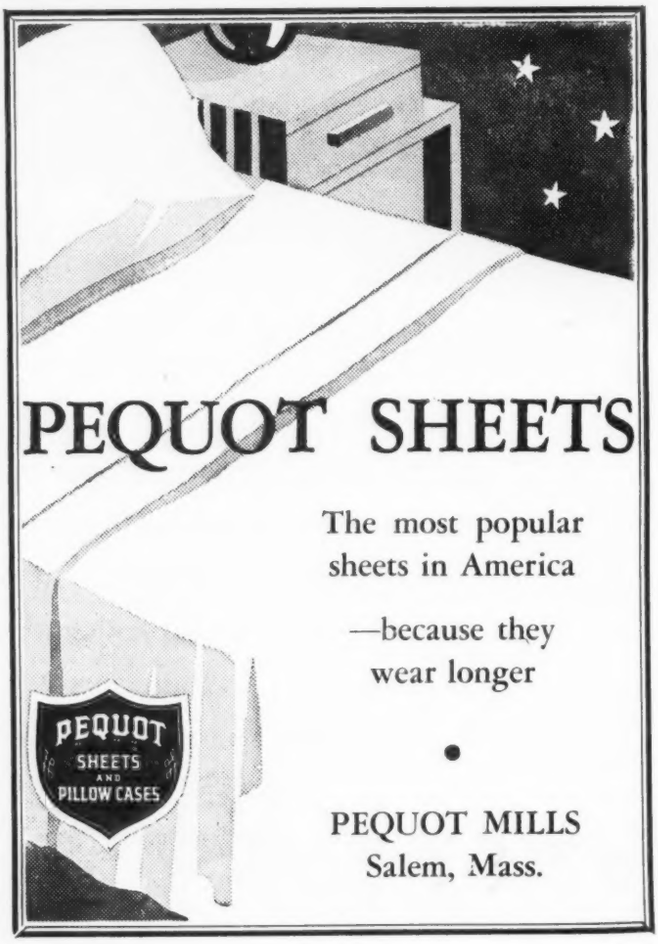
COTTON WARPS

Cotton Yarn and Warps . . Single or Ply . . White or Colored . . Carded . . Combed

Novelty yarns—of cotton, worsted, wool, mohair, rayon, silk—in all fashionable combinations and effects and in many original effects. Write for samples.

Sell Direct

Dana Warp Mills . . Westbrook, Maine



PEQUOT SHEETS

The most popular sheets in America

—because they wear longer

PEQUOT MILLS
Salem, Mass.

The best of the extra dull yarns

Englo
ENKA

We have brought this yarn to a high state of perfection. It is pigmented and uniformly very, very dull. It imparts that cool suede hand and unusual softness to a fabric. It dyes with true evenness and with a fine dye union. It is whiter even before bleaching. And Englo is the strongest of the pigment type yarns.

Englo yarns are our latest contribution to textiles. They knit and weave beautifully and combine perfectly with acetates for cross dyeing. Englo is decidedly the better extra dull yarn.

DULL · SMOOTH
STRONGER · EVEN DYEING

American Enka Corporation

Enka, N. C. • 271 Church St., New York • Providence, R. I.

Wider Markets
... More Profit!

Arbitrary credit limits reduce sales volume—It is to our interest to promote your sales through prompt and intelligent credit checking service.

(Like Selling for Cash, Without Credit Risk)

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CORRESPONDENCE INVITED

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TEXTILE BANKING COMPANY

53 MADISON AVENUE

NEW YORK

The Halliwell Company

Pawtucket, Rhode Island

Dyers, Bleachers and Mercerizers of Cotton Yarns

A new plant, latest and most modern machinery and equipment, backed by more than forty years of specialized experience, guarantees service and satisfaction

GUARANTEED in weight, temper and style. Back of this guarantee is a 25-year experience, skilled workmanship, specially drawn stock, and an enormous amount of research and experiment in high speed traveler manufacture. Write for samples and prices.

The Dary Ring Traveler Co.

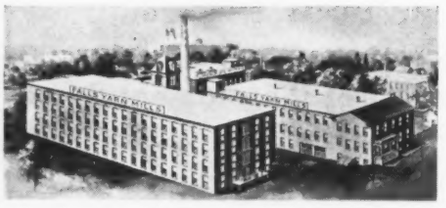
Taunton, Mass.

F. H. DARY B. G. DARY
John E. Humphries, Box 843, Greenville, S. C.
Charles L. Ashley, Box 720, Atlanta, Ga.

FALLS YARN MILLS

WOONSOCKET, R. I.

Incorporated 1904



Fine Woolen and Merino Yarns

SELL DIRECT

Philadelphia
H. R. Shirley, Packard Bldg.

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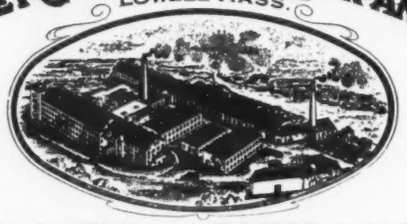
GILET CARBONIZING COMPANY INC.

LOWELL MASS.

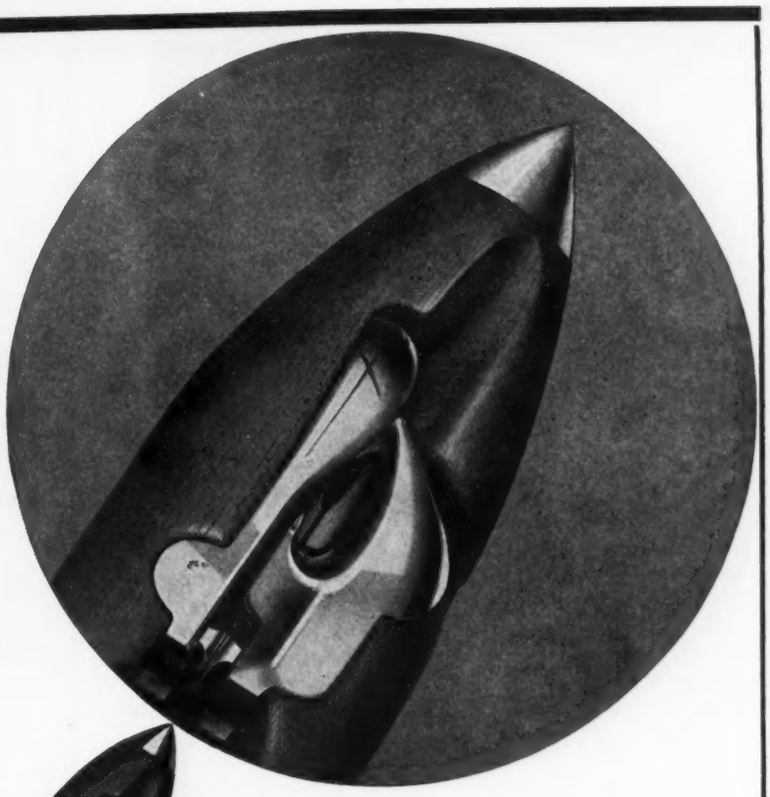


WOOL & NOILS SCOURED, DEPAINTED CARBONIZED

WOOLEN & WORSTED, MIXED THREADS & CLIPS DESIZED, CARBONIZED, CARDED, CUT TO DESIRED LENGTH & GARNETTED.

SULPHURIC ACID BLEACHING } PROCESSES

MILLS ARE REORDERING THIS *Positive Tension* SHUTTLE



WITHIN six months, the U S Jackson Tension Shuttle has been adopted by forty-one mills weaving silk and rayon. *More than half have already re-ordered;* a number have re-ordered four to six times!

There is no guess work about it! The U S Jackson Tension Shuttle definitely gives *positive tension on the first pick and every pick* on bobbin changing automatic looms. It does away with loose and tight picks and scalloped selvages. It is adjustable to practically any degree of tension.

Let us demonstrate Jackson Tension Shuttles in your mill. We can supply them in Dogwood, Persimmon or Fibre Clad. Write, wire or 'phone the nearest U S Sales Representative.

OFFICES
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Charlotte, N. C.
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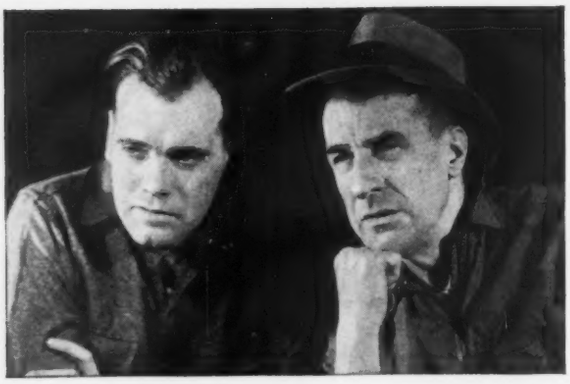
CHICAGO AGENT:
ALBERT R. BREEN
2650 Coyne St.
Chicago, Ill.

U S BOBBIN & SHUTTLE CO.
Manchester, New Hampshire

BETTER BOBBINS • SPOOLS • CONES • SHUTTLES



"Why can't we make 'em see that new rings will pay for themselves?"

Do you make your superintendent fight for new equipment—or do you encourage him to point out opportunities for building profit through better operation? Ask your super and overseer: "Are the rings on our frames worn so much that we need new ones to meet competition?" If your rings ARE badly worn, new ones will pay you a definite profit in better production and improved quality.

WHITINSVILLE (MASS.)

SPINNING DIAMOND FINISH **RING CO.**

Makers of Spinning and Twister Rings since 1873

Southern Representative: WALTER L. NICHOLSON, 2119 Coniston Place, Charlotte
Mid-West Representative: ALBERT R. BREEN, 2650 Coyne Street, Chicago

WEIMAR BROTHERS

U. S. BINDING

We make a Specialty of Binding and Narrow Fabrics

TRADE MARK

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Manufacturers of

Tapes, Bindings and Narrow Fabrics

2046-48 Amber Street, PHILADELPHIA, PA.

RAYON TOP MAKERS • **TOPS NOILS**

Standard Grades

Bleached . . . Unbleached

Superfine

ANDREW K. HENRY

158 Summer St., BOSTON, MASS.

GREIST DROP WIRES

The Greist Manufacturing Co.

New Haven, Conn

LE BON BLEACH & DYE WORKS, Inc.

~ 1115 Central Avenue, Pawtucket, R.I. ~

MERCERIZE, BLEACH and DYE

Cotton Yarns, Tapes, Braids, Threads, Hosiery, Rubber Linings, etc., Coning, Tubing, Reeling. Bleaching and Dyeing Rayons a specialty.

Direct, Sulphur, Sunfast and Vat dyes, dyed on cotton and rayon

THE KENT MFG. CO.

Clifton Heights
Penna.

WOOLEN GOODS and WORSTED YARNS

French
Spun

Important Notice!

Type K Machines Increase Production without Extra Work per Operator

In view of the Executive Order issued by the President on October 16 prohibiting increased load upon operators, we are interrupting a series of advertisements on *How Type K Bobbin Stripper Lowers Cost* to clarify any misinterpretation that may arise in your mind about the use of Type K in your mill.

The order clearly states a change may be made in the type of equipment used, provided the amount of effort of the worker is not increased.

Although the new Type K Machine increases production output, by cleaning 100 to 120 bobbins per minute, it does not increase the load on the operator.

This increased production is made possible by the improved mechanism of Type K . . . which permits the operator to devote a far greater proportion of his time to the productive feeding of the machine.

Leading mills in 19 countries today are using this efficient Type K Machine, because it increases production and earns a substantial saving yearly. You can effect great savings for your mill by installing Type K, and still comply with the provisions of the President's Order.

Write today, without obligation, requesting a Terrell representative to estimate the savings TYPE K *will make in your mill.*

the new **TYPE K** *Bobbin Stripper*

The Terrell Machine Co., Inc.

1216 North Church Street
CHARLOTTE, NORTH CAROLINA

MR. LUTHER PILLING, *Danielson, Connecticut, Representative for N. Y., N. J., Pa., New England States, and Canada*

GEO. THOMAS & CO., LTD., Manchester, England, *European Agents*

The Proper . . . RING TRAVELER . . . for every TEXTILE NEED . . .

UNIVERSAL STANDARD
U.S. RING TRAVELER CO.

THE BOWEN SPECIAL TEMPER
ROUND AND SQUARE POINT
FLAT, OVAL AND ROUND WIRE
THE BOWEN VERTICAL STEEL
THE BOWEN VERTICAL BRONZE
THE BOWEN PATENTED BEVEL EDGE
THE BOWEN PATENTED VERTICAL OFFSET
THE BOWEN PATENTED NE-BOW VERTICAL

for

SPINNING and TWISTING

Cotton, Wool, Worsted, Silk, Rayon and Asbestos Yarns

Universal Standard Ring Travelers

. . . in sizes and weights to meet every requirement.

Order Now . . . Write for Samples

U. S. Ring Traveler Company

Providence, R. I. **Greenville, S. C.**

AMOS M. BOWEN, *President and Treasurer*

Sales Representatives

NEW ENGLAND ..... Carl W. Smith
MID-ATLANTIC ..... Geo. H. Gilligan
SOUTHERN ..... William P. Vaughan, Oliver B. Land, Torrence L. Maynard

A Traveler for Every Fibre

Just a *Reminder*

That you send for the Case Studies of Industrial Power Transmission as offered by the Power Transmission Council on pages 8-9 of this issue of Textile World. They contain the report of actual findings of power transmission engineers in six different types of plants and give you detailed costs of operating modernized group drives compared with the cost of a unit drive on each machine. If you prefer, write *us* and *we* will send you this data with our compliments.

Sunbank Belting
Chas. A. Schieren Company
Tanners and Manufacturers of
LEATHER BELTING, PACKINGS and SPECIALTIES
Main Office and Factory:
33 FERRY STREET NEW YORK
Branches and Distributors in All Principal Cities

MEMBER OF THE POWER TRANSMISSION COUNCIL

OSCAR Outstandingly HEINEMAN High CORP. Class

Raw and Thrown Silks

To the Hosiery Trade
for over Forty Years

Chicago, Ill.
Armitage, Fairfield and Washtenaw Aves.

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JOHN ROYLE & SONS
Paterson, New Jersey

Pioneer builders of punching, lacing, and repeating machines for jacquard cards

Please submit sample card showing index and all features desired.

1860 - - - - - 1934

NOVELTY-YARNS
For
WEAVERS-KNITTERS

MONTGOMERY
WINDSOR LOCKS, CONN.
Designers and Spinners of Novelty Yarns
New York Salesrooms - 468 4th. Ave.

MURDOCK Bobbin Holders

Our latest patterned holder is built with heavy lugs with a cup washer which gives greater strength for holding automatic bobbins.

Automatic Bobbin
also the Regular Filling Bobbin having 1 3/16 inch head. If you are using automatic bobbins write for sample.

Write us regarding all matters pertaining to bobbin holders, as we make many kinds, and are sure we can be of help to you.

MURDOCK & GEB CO., Franklin, Mass.
Manufacturers of Bobbin Holders for Over Thirty Years

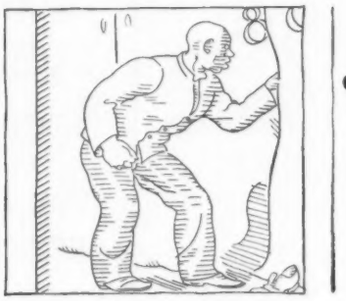
THOS. WOLSTENHOLME SONS & CO. INC.
3300 Frankford Avenue
Philadelphia, Pa.

Yarns for all purposes

French and English Spun Worsted
French Spun Zephyr
French Spun Merino

Representatives:—
BOSTON—Perkins & Boland, Inc., 99 Chauncy St.
LOS ANGELES—Arthur Bone, 4366 Worth St.
CLEVELAND—Saul Fiegenbaum, 1352 W. 6th St.
CHICAGO—C. F. PEFFER, 222 W. Adams St.

THE BIGNESS OF LITTLE THINGS



THE porter's tug at your pillow was as specified—time for a quick shave—the train didn't rock too much. Things thrown back in the grip, shirt, tie, coat—all on. Then as the train started to slow down, a quick tug at your shoe lace—*and* the darned thing broke!

kdt

It's not enough just to have things—you must be able to depend on them.

Kaumagraph believes foresight is more profitable than hindsight. That's why we spend just that little extra effort to make dry transfers, embossed seals or lithographed wraps that are beyond criticism.

KAUMAGRAPH COMPANY

200 VARICK STREET, NEW YORK CITY

CHICAGO PHILADELPHIA LOS ANGELES CHARLOTTE, N. C. CHATTANOOGA, TENN.
PARIS, ONT. MANCHESTER, ENGLAND MEXICO, D. F. PARIS, FRANCE

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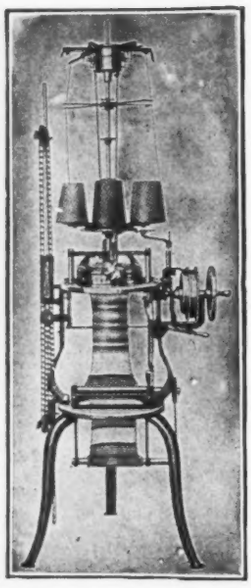
Kaumagraph protects product package identity

FEWER MACHINE STOPS
are mighty important when you're working on a SHORTER WEEK

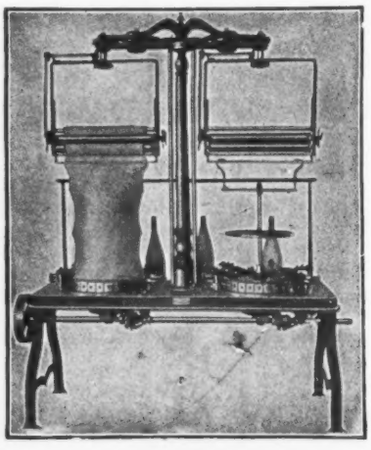
With hours of operation grown shorter, every production hour becomes more precious, every hour carries a bigger share of your fixed overhead. That's why you cannot afford any lost hours! And you may be sure that Crane Knitting Machines will do their part in keeping the needles going hour after hour without time loss. You will never trace a machine stop to these fast, smooth running machines. Let us give you the proof. Write for details.

CRANE MFG. CO.
Lakeport, N. H.



At the left. Improved Automatic 3-Colored Plain Stripes. Made in sizes from 7⅛ in. to 20⅛ in. inclusive, of any desired gauge. Measurements are back to back of cylinder needles. Knit fabrics for bathing suits, theatricals, athletic goods. Crawford stop motion applied when requested.

At the right. Spring Needle Underwear Machine with Automatic Take-Up. Sizes from 13 in. to 26 in. in diameter of any desired gauge, the number of feeds depending on the size of cylinders. Also in sizes from 10 in. to 32 in. diameter, for production of big variety of fabrics. Plain feeds, stockinet, eiderdown and astrachan feeds.



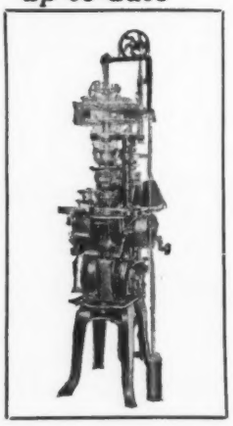
CRANE *Spring and Latch Needle* KNITTING MACHINERY

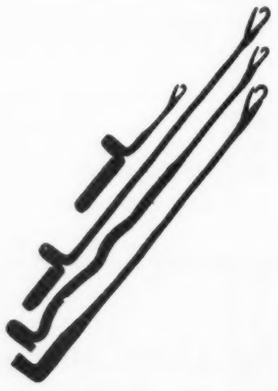
Acme Products
for seamless hosiery knitting

Speak for Themselves

Machines
up-to-date

Needles
Economy makers





ACME KNITTING MACHINE & NEEDLE CO.
FRANKLIN, N. H.

TOMPKINS
Knitting Machines

QUICK SERVICE is important to a mill.

Our efficient service methods effect the quickest possible deliveries.

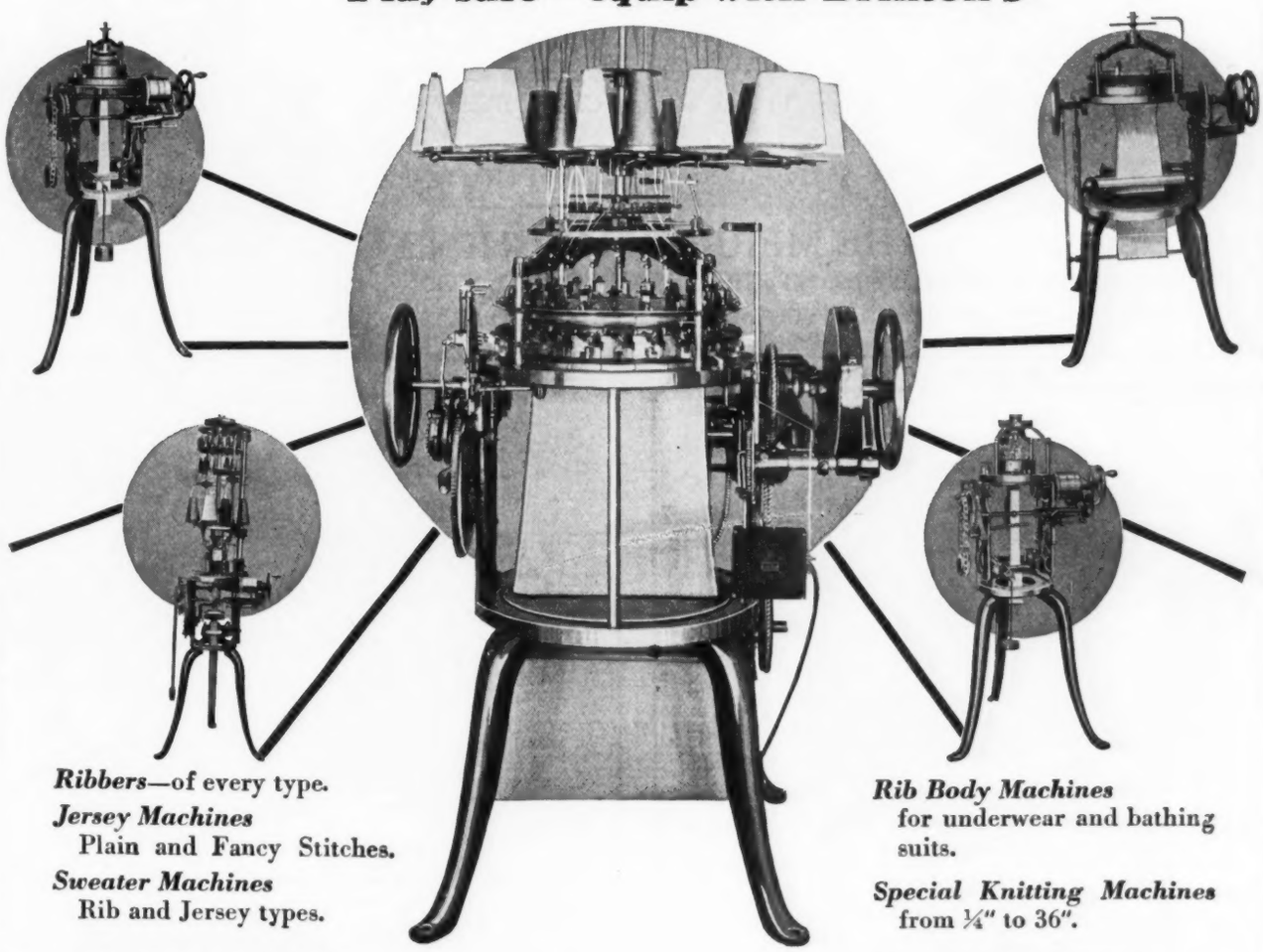
And REMEMBER; We are the ONLY builders of genuine Tompkins Parts and Machines.

TOMPKINS BROS. CO.
Syracuse, N. Y. **Established 1846**

Lower production costs with BRINTON

Thousands of Brintons have had an enviable service record, for years, in many of the most successful mills in the country. Place your faith and hope of profits in Brinton Knitting Machines. They are dependable and reliable. Why install unknown quantities in your Mill and inherit all kinds of unknown troubles?

Play safe—equip with Brinton's



Ribbers—of every type.

Jersey Machines
Plain and Fancy Stitches.

Sweater Machines
Rib and Jersey types.

Rib Body Machines
for underwear and bathing suits.

Special Knitting Machines
from ¼" to 36".

H. BRINTON COMPANY

3700 KENSINGTON AVE. PHILADELPHIA

CIRCULAR KNITTING MACHINES

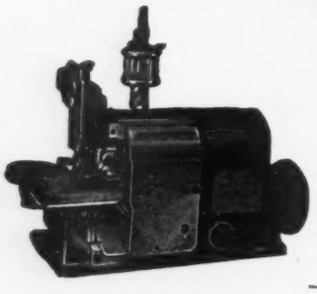
BRINTON

MERROW

TRADE MARK REG. U. S. PAT. OFF.
AND FOREIGN COUNTRIES

HIGH SPEED MACHINES
For Trimming and Overseaming, Hemming and Overedging

Also PLAIN CROCHET and SHELL STITCH MACHINES for Use in the Fabrication of Knitted and Woven Goods of All Kinds



Illustrated above is the work of
MERROW STYLE 60 RD MACHINE
For simultaneously trimming and overedging, producing a *retentive* finish particularly desirable for use on loosely woven goods such as Rayon Bedspreads, Towels, Wiping Cloths, Blankets, etc.

—200 VARIETIES FOR 200 PURPOSES—

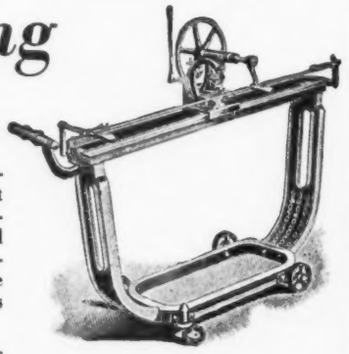
THE MERROW MACHINE CO.
14 LAUREL STREET, HARTFORD, CONN., U. S. A.
SEND US SOME OF YOUR FABRIC TO BE FINISHED

Six Feed Rotary Jacquard Machine for Knitting Latest Jacquard Designs.

Write for Catalogue and full information

STAFFORD & HOLT, INC.
Little Falls, New York, U. S. A.
New York Office—
D. Stromberg, 671 Bushwick Ave., Brooklyn, N. Y.

Perfect Seams for Finishing



EVEN when operated by the lowest paid help, the Dinsmore No. 1 Hand Power Portable Railway sewing machine provides faultless seams.

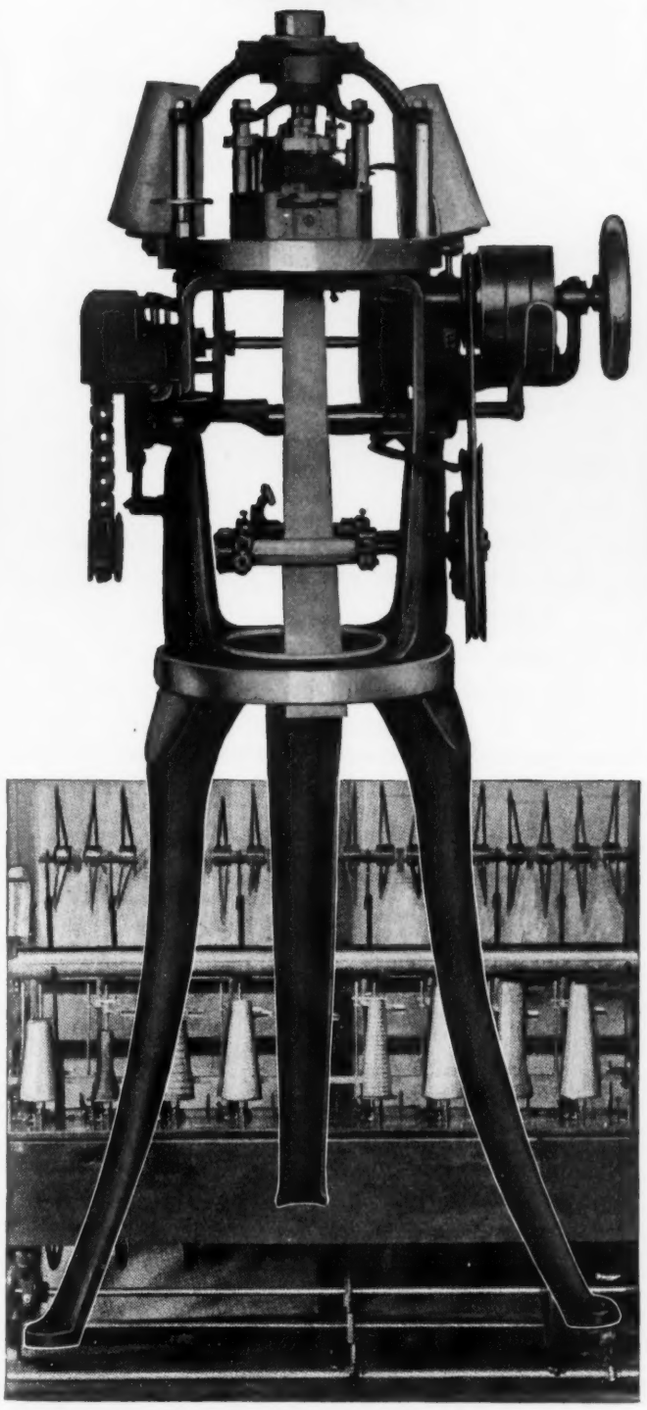
This machine does its work anywhere, being easily moved about at will. It is an efficient practical means of joining the ends of cloth for its passage through such finishing operations as shearing, dyeing, printing, etc.

These machines will sew wet or dry, thick or thin goods, and are built in different lengths for any width of cloth.

The seam can be sewed very near the edge and is easily removable. *The edges come out all even.* Write for complete catalog.

DINSMORE MFG. CO.
See also CONSOLIDATED TEXTILE CATALOG
SALEM, MASS.

THE FIDELITY UNIVERSAL RIBBER

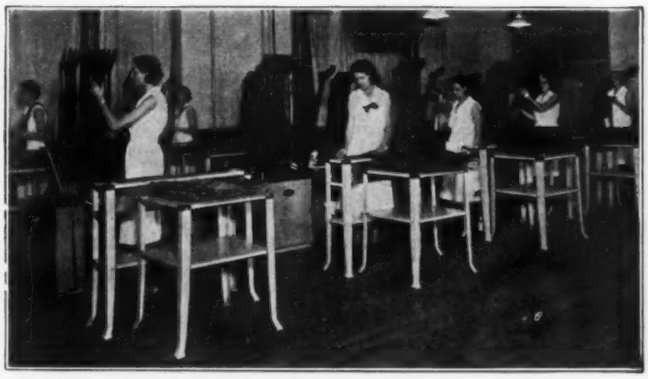


KNITTING MACHINES
BRAIDING MACHINES
POCKET CREASING MACHINES
WINDING—SPOOLING AND TAPING MACHINES
FIDELITY UNIVERSAL RIBBERS

FIDELITY MACHINE COMPANY PHILADELPHIA, PA.

PARAMOUNT Dual Heat Hosiery Finishing Machine

The Culmination of Twenty-Five Years of Paramount Progress



CREATING Incomparable Quality in Hosiery Finishing and Establishing Production Figures that are truly amazing, the Paramount Dual Heat Machine will revolutionize and simplify your hosiery drying and finishing methods.

Compare this Machine with your present equipment. You will find that it requires less square feet of floor space per dozen than any existing method of finishing; less steam consumption—heating is direct; less power—a one-quarter horsepower motor operates the entire machine; less investment per dozen—reasonably priced; less upkeep — built to render years of service; and production possibilities with quality work that cannot be challenged.

You need not change your budget for 1934. Machines will pay for themselves in direct savings to you.

WRITE FOR DESCRIPTIVE BOOKLET.

Paramount Service With All Paramount Products

Paramount Textile Machinery Company

Main Sales Office
538 S. Wells Street, Chicago, Ill.

THE LOYAL T. IVES COMPANY

ESTABLISHED 1874

NEW BRUNSWICK NEW JERSEY

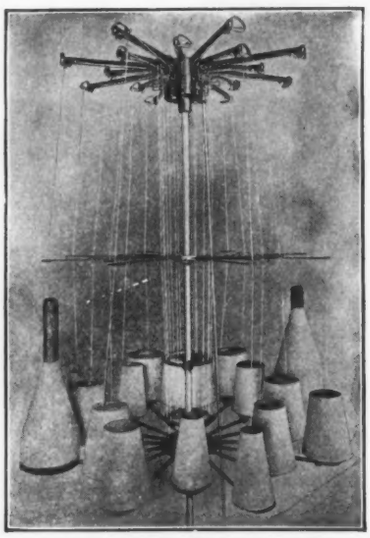
Manufacturers of

SPRING BEARD KNITTING NEEDLES

For Cylinder, Full Fashioned, Warp and Rib Knitting Frames, also Narrowing, Stand, Transfer Points, and Welt Hooks for Full Fashioned Machines; Slides, Sinkers, Jacks, Guides or Flat Eyes, Sley and Milanese Points, Transfer Points or Quills, etc.

Sheet Metal Specialties to Order

CRAWFORD STOP MOTIONS



Crawford Regular Type Stop Motion.

Automatically stop any KNITTING MACHINE INSTANTLY if yarn breaks, or other trouble appears—prevent holes, press-offs and needle breakage.

Three types:

Regular "B" Control "Elstop"

CRAWFORD MFG. COMPANY

New Brunswick, N. J.

Needles

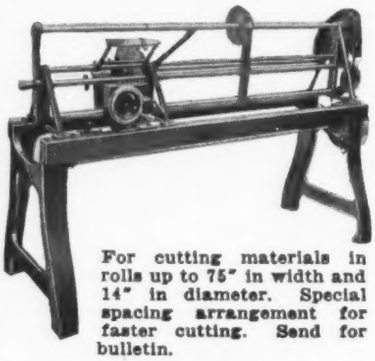
for all types of Knitting Machines

▼

Jasper-Groz Needle Co., Inc.

71 MURRAY ST., NEW YORK, N. Y.

BArclay 7-1472



For cutting materials in rolls up to 75" in width and 14" in diameter. Special spacing arrangement for faster cutting. Send for bulletin.

Standard CUTTER

●

A modern machine for cloth rooms that have no money to waste!

●

FABRIC MACHINE CO., Bridgeport, Conn.

FRANKLIN MACHINE CO.

Engineers — Founders — Machinists

PROVIDENCE, R. I.

Ball Winding Machines
Yarn and Wool Top Baling Presses
Corliss Steam Engines
Textile Printing Machinery
Special Machinery
Yarn Dressers
Spun Silk Machinery
Shoe Lace Tipping Machines
for Metal and Celluloid
Machinery for Dyeing Rayon in the Skein
Package Dyeing Machinery

ACID AGERS

WE HAVE recently installed an AGER built to resist acetic acid corrosion. More brilliant colors were realized at a greater saving in acid consumption than ever before on agers at our customer's plant.

Why not write us for complete data?

NEW ENGLAND BUTT COMPANY

Dept. T-12, Providence, R. I.

Thirty-first Annual

KNITTING ARTS EXHIBITION

COMMERCIAL MUSEUM . . . PHILADELPHIA

APRIL 22, 23, 24, 25, 26, 1935

AUSPICES

NATIONAL ASSOCIATION OF HOSIERY MANUFACTURERS

YES, BUSINESS IS BETTER!

Again the KNITTING ARTS EXHIBITION becomes the self-starter for 1935 business and leads the industry out of depression. This great Exhibition spreads its effect over the entire country—creates new interest and turns thoughts toward purchasing.

Hundreds of manufacturers, comprising the largest in the industry, including knitting, dyeing, drying machinery, together with allied products and mill supplies will reveal their latest designs and new mechanical features at the Exhibition. They have found it the most economical method of demonstrating their product to the entire knitting trade.

It is the great meeting-place for thousands of the industry's executives, mill officials, purchasing agents, sales and service managers. It is their only opportunity to view the improvements of the year—to make comparisons—at one time—under one roof—AND THEY COME TO BUY.

BUSINESS IS BETTER

No manufacturer—distributor—jobber selling the knitting or allied trades can afford to pass up the opportunity of displaying and actually demonstrating their product.

The cost of space is only $150 for a space of 100 square feet. It includes booth complete with sign, desk, chairs, rug and clothes tree (where current is necessary for the operation of machinery, it is also included).

SPACE NOW SELLING

For full information, write, wire or phone

KNITTING ARTS EXHIBITION

327 Park Square Building **BOSTON, MASS.**

ALBERT C. RAU, Manager

REDUCED RATES ON ALL RAILROADS

Follow This Banker's Precedent

Like thousands of his kind, this able and highly respected banking executive is entrusted with the investment of millions of other people's money. But in spite of his abilities he does not play a lone hand. In fact he is a leading exponent of the "group analysis and prescription" principle. While he reserves the right to exercise his own initiative and to make his own decisions, he does not hesitate to consult with his immediate colleagues and with authoritative outside opinion regarding investment problems.

Chemical processing executives in the textile industry can follow this man's precedent with profit. Textile Chemistry is so diversified and its research so prolific that no plant executive can keep entirely up-to-date on all its phases.

Therefore, he must do the next best thing:—utilize broad outside experience through consultation.

Arnold-Hoffman offers such a consultation service based on more than a century of contact with all branches of the textile industry, a complete, modern laboratory, and a staff of specially trained chemists.

Since this service is free to all users of A-H Products, actual or potential, why not use it when faced with knotty processing problems or when checking up on your routine methods?

Arnold, Hoffman & Co., Inc.

Established 1815. Plant at Dighton, Mass.

PROVIDENCE, R. I.

New York
Philadelphia

Boston
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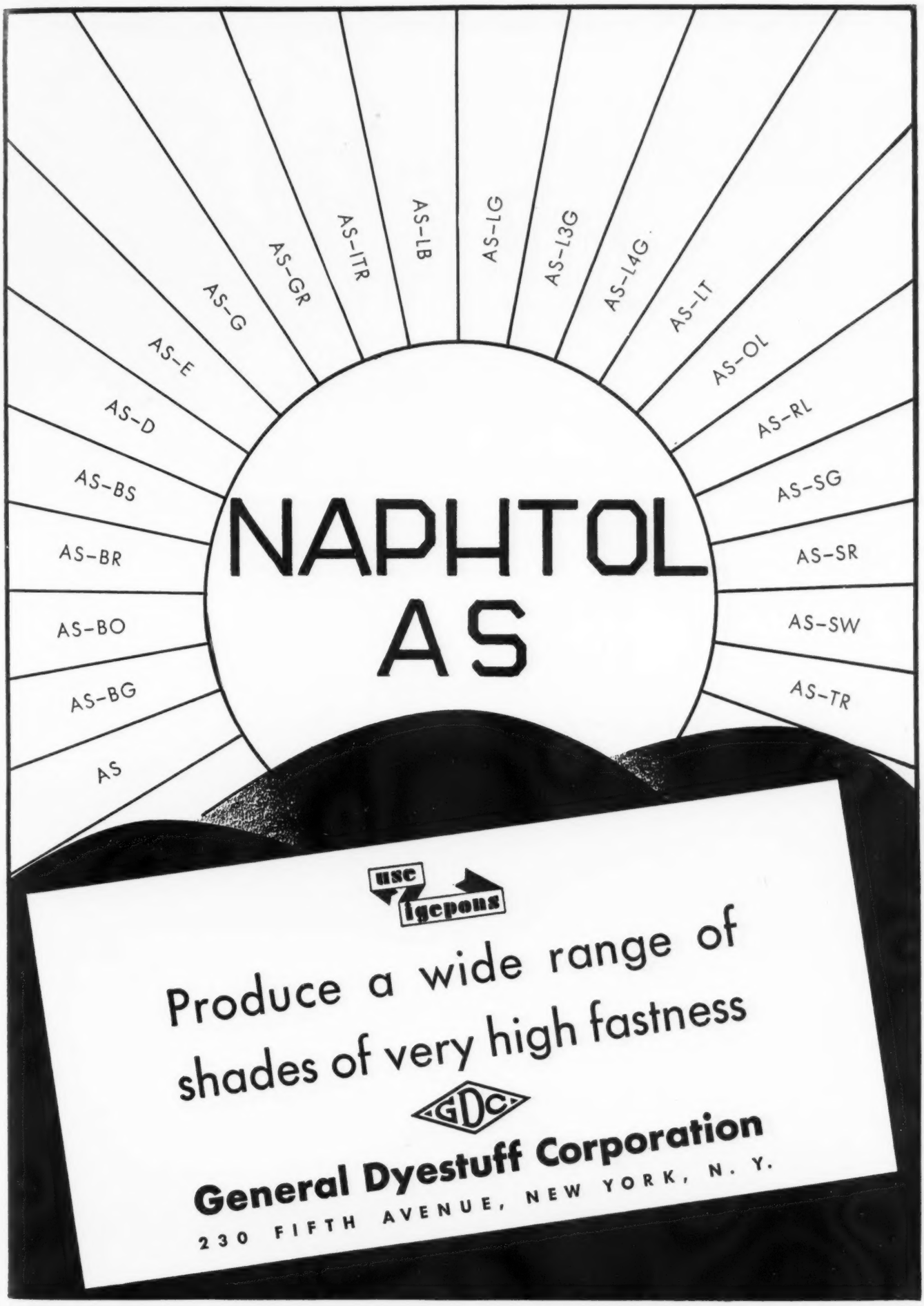
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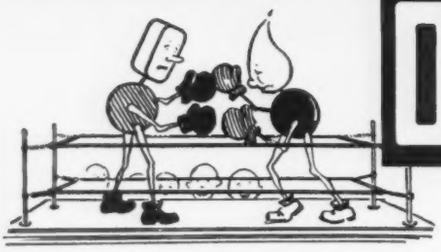

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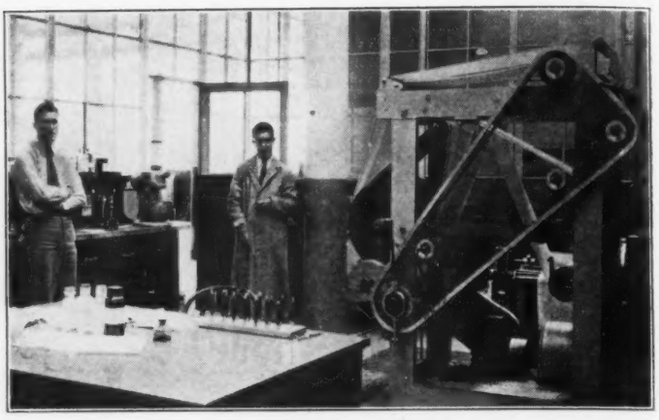

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MAINTENANCE of high quality and uniformity is assured the textile trade by the Corn Products Refining Company's system of control laboratories. In the Textile Laboratory, there are machines designed to duplicate accurately the conditions met in a customer's plant.

Under the supervision of men trained in the textile industry itself, warp sizing, cloth printing and finishing are actually done *according to the methods used by the customer*—to assure him that he is getting goods which are best suited to his particular equipment and process.

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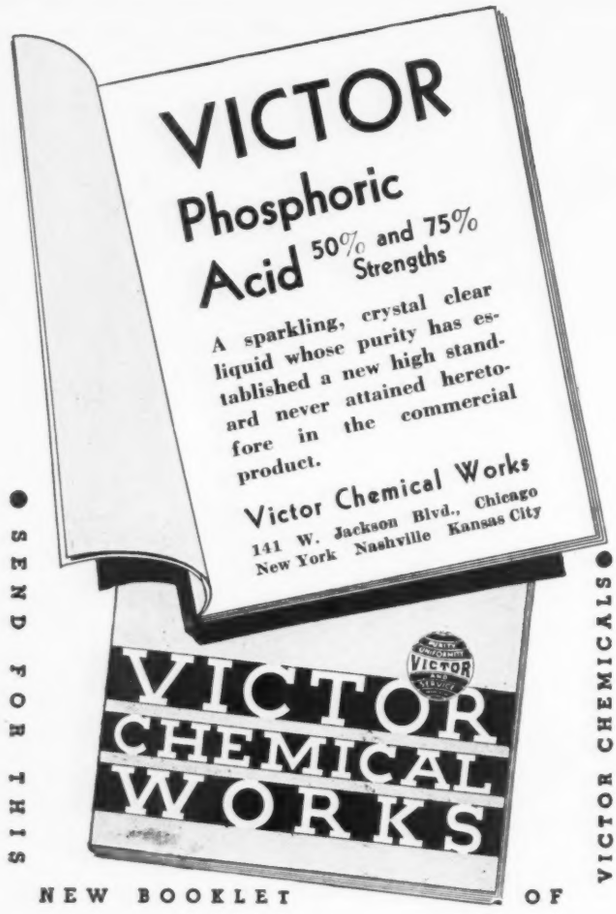
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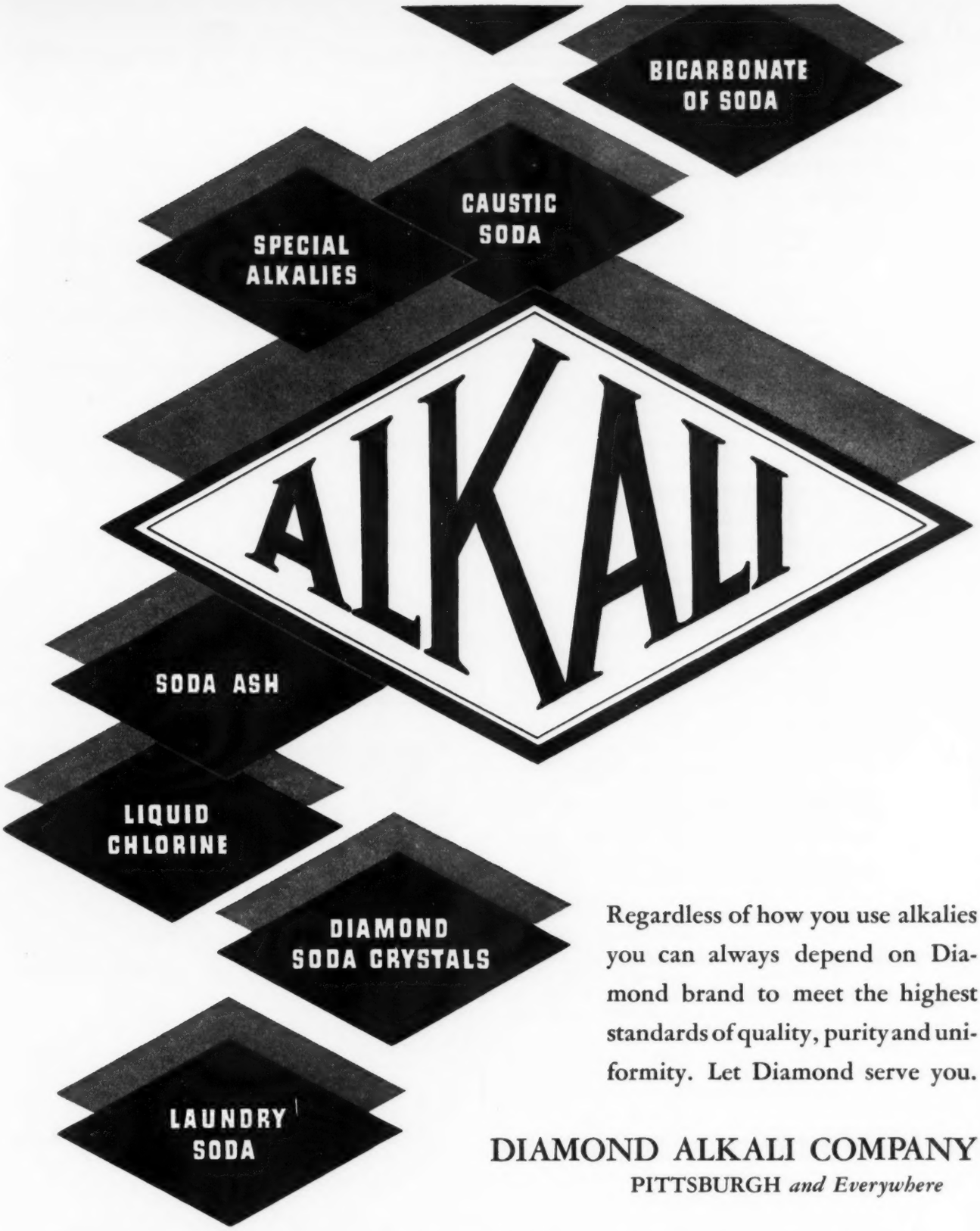

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"MEON"

THE IDEAL CONDITIONING AGENT

WHAT IS A CONDITIONING AGENT?

The term "conditioning" - by cotton textile usage - refers chiefly to moisture content of the fibre. Briefly- "conditioning" is the addition of desired moisture to the fibre - in cotton, amounting to approximately 8% by weight.

Until recently, the method of conditioning consisted of placing the yarn in a room into which steam was injected. For several hours the yarn was thus treated and moisture slowly absorbed. For lack of an agent to break down surface tension of the water, rapid absorption was prevented. In more recent methods, rapidly moving, machine-actuated aprons have been introduced - to carry yarn packages thru a spray chamber in which a liquid conditioning agent is applied. Better results are thus given in an interval of a few minutes time.

WHAT CONSTITUTES A SATISFACTORY CONDITIONING AGENT?

Requirements of a satisfactory conditioning agent are not always clear-

1ST. It should insure penetration of the liquid into the fibres - but this alone does not effect complete moisture control. Anything that reduces surface tension of the water will increase penetrating speed. Other requirements exist of equal or even greater importance. Many products serving to decrease surface tension, do not possess these other qualities.

2ND. A good conditioning agent should be practically neutral and odorless and must not only insure prompt moisture penetration, but must hold it in the fibre during later processes. Not all penetrants will do this- and mere proof of rapid penetration is not conclusive evidence of a product's worth.

3RD. Mildew must be prevented in the use of a conditioning agent. Without a guarantee of such protection by a reputable firm, mildew tests should precede actual operations.

4TH. Rust prevention is an essential factor of the ideal conditioning agent. Actual test of this feature can be made in 48 hours by placing an ordinary nail in a mixture of water and a few drops of the conditioner.

5TH. Varnish or other bobbin coatings should not be injured. Without such protective surfacing, bobbins will suffer the effects of constant moistening.

SUMMARY

The Ideal Conditioning Agent has five distinct essentials -

- Prompt moisture penetration into the fibre.
- Moisture retention - through hygroscopic properties of the fibre.
- It must not mildew. • It must protect against rust.
- It must not attack bobbin surfaces.

"MEON"- An Ideal Cold Water Conditioning Agent HAS ALL THESE ESSENTIALS.

Manufactured by

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Originators of the BRETON MINEROL PROCESS for CONDITIONING COTTON

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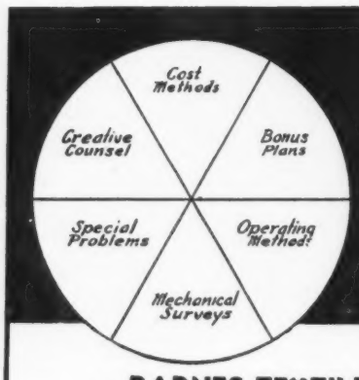

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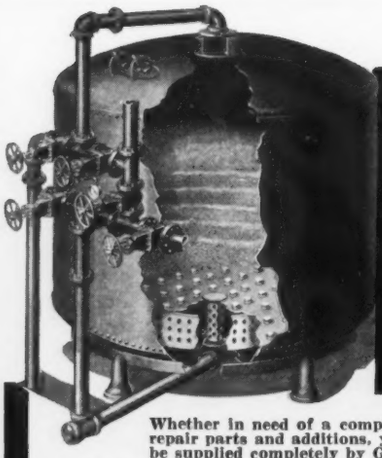

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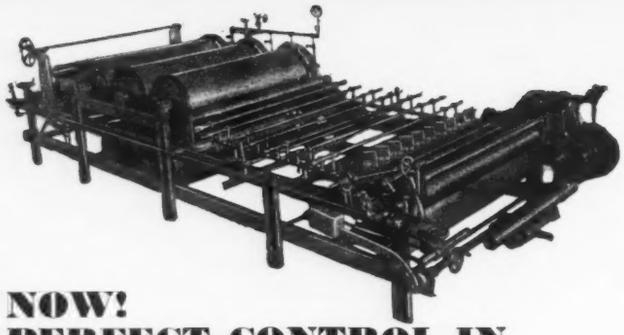

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A change gear box, which replaces the old-fashioned cone pulleys, gives positive control of stretch and keeps tension uniform throughout warp. It permits maintaining a record of tensions employed so results for any type warp can be duplicated later.

A quetsch pressure gauge indicates exact pressure on the warp in pounds.

Other features: Improved friction Disc Drive—Supplants slip belts. Automatic Steam Cut-Off—Regulates flow of steam to drying cylinders according to operating speed. Slow speed—Allows operator to quickly slow machine down to ½ yard a minute. Reverse Motion—Permits running as much of warp as desired back through machine. Cut Marker—Quickly adjusted to mark edge of any width goods and any length of cut. Speed Gauge—Shows yards per minute at which warp is being run.

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*Name of mill on request

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2 Helps to End Stops and Delays in starting looms, spinning frames, knitting and finishing machines

3 Improves Quality of Product

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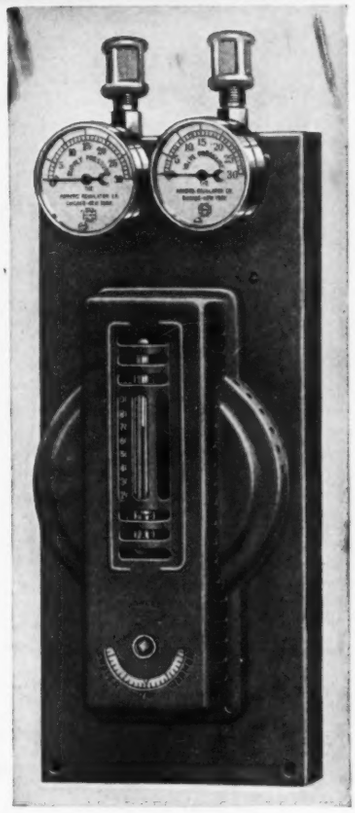

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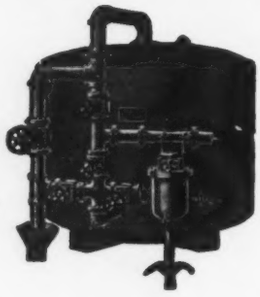

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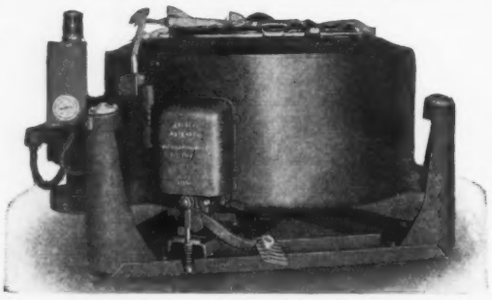

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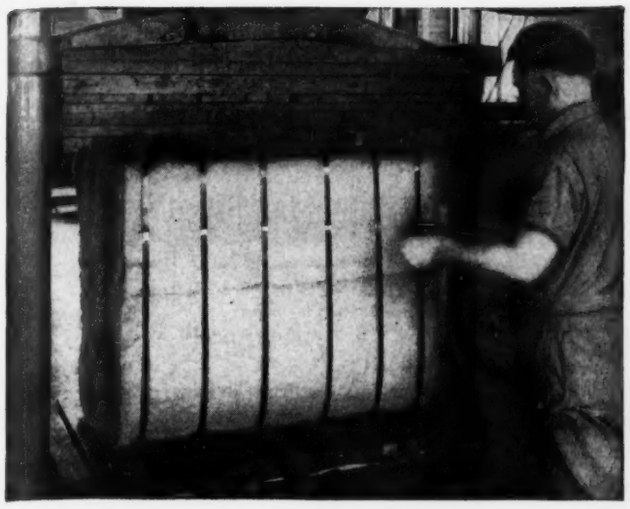
TENTERING and DRYING MACHINERY



Stanley Eversafe
--the name of a better
Bale Tie System

Even the most critical executive cannot help admitting the logic of changing to Stanley Eversafe in view of advantages like these:

1. **Stanley DS Seals make stronger joints than any other type of seals.**
2. **ROUND SAFETY EDGES AND ENDS ON STANLEY EVERSAFE PREVENT CUTS AND SCRATCHES AND SPEED UP BALING OPERATIONS.**
3. **STANLEY EVERSAFE TIES "COILED DOUBLE" SAVE JUST HALF THE TIME IN UNCOILING AND MEASURING.**
4. **The Satin Finish on Stanley Eversafe gives you smooth, clean ties to work with.**
5. **Made of Stanley Steel, Stanley Eversafe Ties are of uniform gauge and tensile strength to insure the greatest efficiency.**

Let us prove to you these statements

THE STANLEY WORKS
New Britain, Conn.

Atlanta Office:
The Stanley Works Sales Co.
552 Murphy Ave., S. W., Atlanta, Ga.

Carolinas Representative:
Horace E. Black
P. O. Box 424 Charlotte, N. C.

Many minor cuts, digs and scratches, generally unreported, slow up tying operations. Round Safety Edges and Ends on Stanley Eversafe Ties prevent such injuries and speed up operations.

Your Firm s Name, Trade Name, Trade Mark, Slogan, Warnings and Special Designs can be had printed continuously on Stanley Colorgraph Ties.

Stanley EVERSAFE
Bale Ties and Seals

Make Cleaning AUTOMATIC

AND LET HER SPIN

When operators spend part of their time *tending* machines and part of their time *cleaning* them, something must suffer—quality or production—or both.

Parks automatic cleaners eliminate virtually all hand cleaning of machines and allow spinners to give all their time to their real work. Production improves and lint troubles stop.

On spinning frames, Parks cleaners thoroughly and continuously clean all surfaces above the ring rails with a current of air on each side that blows accumulated fly outward and downward to the floor. Cleaner frames make for cleaner yarn—a marked reduction in breaks at the loom, with fewer pickouts, cutouts and seconds.

Parks automatic cleaners now include a type fitted for every kind of installation: the Parks Turbo Traveling Cleaner, mounted on the creel boards—and the Firth-Smith Bunchless Cleaner, suspended from a monorail.

For complete details of both types, write to

PARKS-CRAMER CO. Fitchburg, Mass. : : Charlotte, N. C.

PARKS
Certified CLIMATE

DUSTERS WOOL OPENERS
CEILING CONDENSERS
PICKERS OILERS
TAPE CONDENSERS
CARDS FEEDS

Double Finisher Card with Tape Condenser

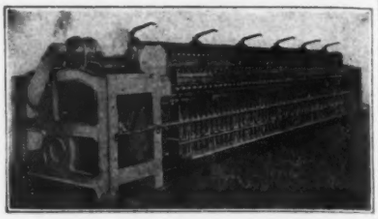
Do Costs Interest You?

We furnish everything required in the lines of machines, attachments, supplies, and information to make wool picking, carding, and spinning departments operate at low costs.

DAVIS & FURBER MACHINE CO.

North Andover, Mass.

There is no substitute for Davis & Furber quality.



Wool Spinning Frame (Model B)

MULES TWISTERS
SPINNING FRAMES
WINDERS SPOOLERS
NAPPING MACHINES
CARD AND NAPPER CLOTHING

For CLEAN Selvages USE THE HERMAS AUTOMATIC

The Hermas gets EVERY thread on face and selvage of the goods faster and better than it can be removed by hand.

Let us clean several pieces of different grades of your cloth. Note carefully how the Hermas removes the selvage threads—the acid test of any shear.

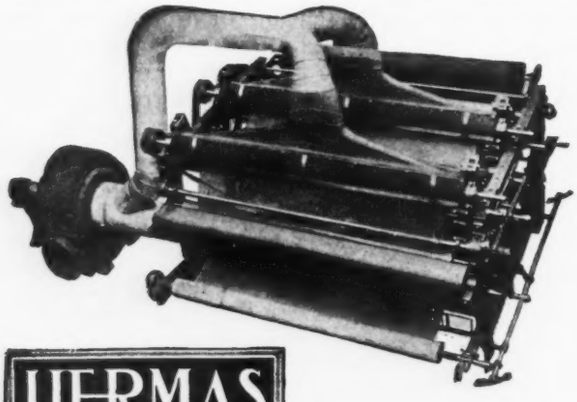
The Hermas will save you many times its cost in a few months. Write today for one of our clothroom experts to call with full details. No obligation.

HERMAS MACHINE CO.

Cloth Room Machinery

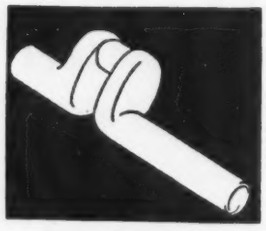
Hawthorne, N. J.

Southern Representatives;
Carolina Specialty Co., Charlotte, N.C.



HERMAS

BABBITT



LOOM CRANK SHAFTS

Babbitt Crank Shafts are offered for practically all makes and sizes of looms. The Babbitt Process introduces nearly 50% more metal into the bends—strength where it's needed most.

BABBITT BROTHERS

FAIRHAVEN (SOUTHERN REPRESENTATIVE HENRY ANNER Box 1515, Greenville, S. C.) MASS.

Drop Forgings
Wrenches Screw Machine Work
Bolts Nuts Cap Screws
Eye Bolts Studs

We specialize to the Textile Trade

RHODE ISLAND TOOL CO.
PROVIDENCE, R.I.

PURE WATER

We make complete Water Filtration Plants and Inversand Water Softeners, employ a staff of well trained engineers and chemists to solve the problems of water purification, maintain a complete chemical laboratory and a fully equipped machine-shop for manufacturing purposes.

Literature and list of users sent on request.

HUNGERFORD & TERRY, Inc., CLAYTON, NEW JERSEY

FASTER
than Mopping

•

CHEAPER *than Mopping*

•

BETTER *than Mopping*

If these seem strong claims for the FINNELL combination scrubber, may we point out the following facts: (1) This machine has a diameter of 21 inches; (2) Its brushes revolve at the rate of 200 per minute; (3) It therefore scrubs faster than four men could mop the same area; (4) At the same time it picks up the dirty water, leaving the floor clean and dry. There's nothing like this remarkable two-in-one machine. It is especially valuable in mills where areas are large, work is constant, and where absolute cleanliness is essential to quantity and quality of the work.

Judge for yourself. A demonstration will be arranged whenever and wherever you say. There is a **FINNELL** representative near you who will gladly show you what this machine can do on your own floor. Simply write FINNELL SYSTEM, INC., 1912 East Street, Elkhart, Indiana. Canadian Distributor: Dustbane Products, Ltd., 207 Sparks Street, Ottawa, Ontario.

FINNELL SYSTEM
OF FLOOR MAINTENANCE

SHOWS the WAY

to

ABBOTT CIRCULATING CONE WINDING

LOWER COSTS

ABBOTT MACHINE CO.
WILTON, N. H.

THE YIELD POINT OF RAYON » »

and all other factors of the complete tensile test, from the first application of the load to ultimate breaking point is clearly shown in the autographic record taken automatically on the new

◆

INCLINE PLANE SERIGRAPH*

◆

of 250, 500 and 1,000 grams capacity. Lower and higher capacities can be furnished to suit conditions.

HENRY L. SCOTT CO.
Providence, R. I.

* Trade Mark Reg. U. S. Pat. Off.

Business Men's PROSPERITY SURVEY

HERE'S a chance to give voice to your own ideas as to which national policies you believe most likely to speed recovery in your line of business.

BALLOTS like this are being published this month in many business papers affiliated with The Associated Business Papers, Inc.—reaching virtually all koy men in every line of industry, trade and profession throughout the nation.

BUSINESS men, nationally, may appreciate an opportunity to express their convictions to a strictly non-partisan and impartial body—with the assurance that by so doing, business views will be presented effectively to the political, banking, industrial, business and labor leaders of the country.

QUESTIONS on the economic ballot below are prefaced with "In your line of business" to make possible an industry by industry study as well as a consensus of business opinion in all fields of industry—so let our industry be well represented in the responses.

ECONOMIC BALLOT

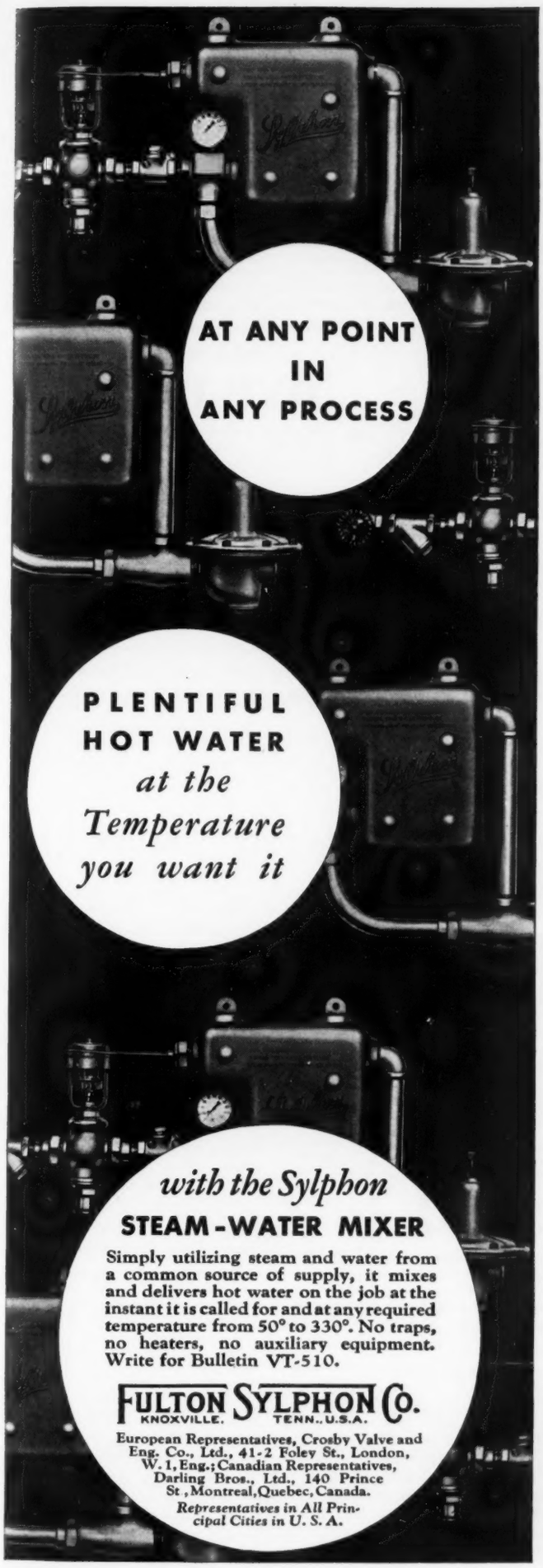
Check your convictions, sign, clip and mail this ballot.

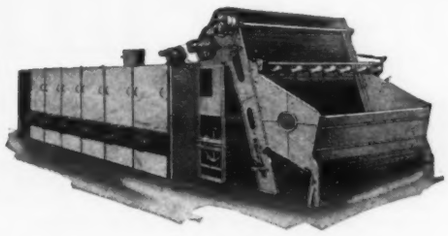
1. As regards the possibility of Congress adopting a universal thirty-hour work week, do you favor such legislation? Yes ( ) No ( ); and if so on the basis of ( ) continuation of existing weekly wages, or ( ) continuation of existing hourly rates of pay.
2. In your line of business are you satisfied with enforcement of maximum hours and minimum wage provisions now in effect? Yes ( ) No ( )
3. In your line of business is there obtainable ample working capital—from banks? Yes ( ) No ( ); from government agencies? Yes ( ) No ( )
4. In your line of business is there obtainable ample investment capital—from banks? Yes ( ) No ( ); from government agencies? Yes ( ) No ( )
5. In your line of business do you favor limitation of industrial output—by government control? Yes ( ) No ( ); by industry control? Yes ( ) No ( )
6. In your line of business do you favor a plan for control of prices—by a code provision establishing price fixing? Yes ( ) No ( ); by a code provision establishing an open price plan? Yes ( ) No ( )
7. In your line of business do you think that government measures now in effect are helping small and medium sized enterprises? Yes ( ) No ( ); hurting such enterprises? Yes ( ) No ( )

Sign or not as you please .....

Kind of Business .....

Please return this ballot to:
Textile World
c/o The Associated Business Papers, Inc.
330 West 42nd St., New York, N. Y.


AT ANY POINT
IN
ANY PROCESS
PLENTIFUL
HOT WATER
at the
Temperature
you want it
with the Sylphon
STEAM-WATER MIXER
Simply utilizing steam and water from a common source of supply, it mixes and delivers hot water on the job at the instant it is called for and at any required temperature from 50° to 330°. No traps, no heaters, no auxiliary equipment. Write for Bulletin VT-510.
FULTON SYLPHON Co.
KNOXVILLE. TENN., U.S.A.
European Representatives, Crosby Valve and Eng. Co., Ltd., 41-2 Foley St., London, W. 1, Eng.; Canadian Representatives, Darling Bros., Ltd., 140 Prince St., Montreal, Quebec, Canada.
Representatives in All Principal Cities in U. S. A.



There Is NO MISTAKING a HUNTER DRYER

In piece carbonizing, stock drying, tentering, carpet drying, loop or any type of textile drying, Hunter units lead the pack.

In production, labor saving, economy in steam and power, they challenge and welcome comparison.

If you operate any textile dryer over three years old, Hunter can show you how and why you can do the job faster, cheaper and better. Check the units listed below — and write for details of proved performance.

Apron Dryers	Loop Dryers
Agitating Table Dryers	Blanket Dryers
Carbonizing Dryers	Tenter Housings
Tenter Dryers	Tenter Chains
Yarn Dryers	Carpet Dryers

Or, if it is preparation or wet finishing ask Hunter before you decide.

JAMES HUNTER MACHINE CO.
Founded 1847
NORTH ADAMS, MASS.

SEARCHLIGHT SECTION

MACHINERY, MILL SUPPLIES, YARNS, ETC., WANTED AND FOR SALE
BUSINESS OPPORTUNITIES, MILL PROPERTIES, POSITIONS AND MEN WANTED

UNDISPLAYED—RATE PER WORD:
Positions Wanted (full or part-time salaried employment only) 5 cents a word, minimum $1.00 an insertion, payable in advance.
(See ¶ on Box Numbers.)
Positions Vacant and all other classifications, excepting Equipment, 10 cents a word, minimum charge $2.00.
Proposals, 40 cents a line an insertion.

INFORMATION:
Box Numbers in care of our New York, Chicago or San Francisco offices count 10 words additional in undisplayed ads.
Discount of 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

DISPLAYED—RATE PER INCH:
1 inch $5.00
2 to 3 inches.....$4.75 an inch
4 to 7 inches..... 4.50 an inch
Other spaces and contract rates on request.
An inch is measured vertically on one column, 3 columns—30 inches—to a page.

COPY FOR NEW ADVERTISEMENTS ACCEPTED UNTIL THE 4TH OF THE MONTH FOR THE JANUARY ISSUE

POSITIONS VACANT

BOSS FINISHER, fully experienced all kinds carded woolen fabrics. Give full particulars including experience and references. Middle West hundred loom mill. P-362, Textile World, 520 North Michigan Avenue, Chicago, Ill.

TEXTILE MAN—Experienced wide looms weaving heavy duck preferred—Canadian preferred. P-361, Textile World, 330 West 42d Street, New York City.

VELVET FINISHER. Velvet manufacturer requires services of experienced velvet finisher. Must have thorough knowledge of velvet finishing machinery and ability to finish all qualities of velvet. In replying state age, complete record of experience with references. P-363, Textile World, 330 West 42d Street, New York City.

HOSIERY designer wanted, with practical machine knowledge, by mill manufacturing boys' and men's golf hose using Banner, Scott & Williams and Standard Trump reverse plaiting equipment. Applicant reply P-374, Textile World, 330 West 42d St., New York City, giving complete references, qualifications, positions held, salary expectations, when available, married or single, etc.

POSITIONS WANTED

CAPABLE sewing machine fixer and finishing department foreman wishes to hear from underwear and sweaters manufacturers, where the faithful service of a first class man is needed. 25 years' experience. Recommendations and references. PW-336, Textile World, 330 West 42d St., New York City.

EXCEPTIONALLY capable mill man, as manager or superintendent; experienced on all kinds of broad silks and all makes of looms, available on or about January 1st, 1935. Opportunity to add to your organization a man that has organized and handled with success all types of help north and south; efficient and economical producer. PW-352, Textile World, 330 West 42d St., New York City.

FULL-FASHIONED foreman. Reading finisher, looping and seaming. PW-332, Textile World, 330 West 42d St., New York City.

GENERAL silk and rayon mill manager and superintendent is open for engagement. Expert on all kinds of silk fabrics, also rayon and celanese material. Would prove to be a valuable man for large cotton mill making rayon and celanese fabrics. PW-353, Textile World, 330 West 42d Street, New York City.

MANAGER or superintendent, men's seamless hosiery, open for connection. 16 years' experience in mill and in executive capacity. Experienced in all classes of men's hosiery including fancy worsteds. Practical knowledge of all seamless knitting equipment including wraps. Best of reference. Any location considered. PW-359, Textile World, 520 North Michigan Ave., Chicago, Ill.

POSITION wanted as weaving foreman or loom fixer foreman in broad silk mill, by a first class loom man who knows how to make saleable merchandise. PW-370, Textile World, 330 West 42d Street, New York City.

STEADY MAN—34 years old with 5 years' experience in Asbestos Textile Mill as Card runner. PW-360, Textile World, 330 West 42d Street, New York City.

TEXTILE CHEMIST. Chief chemist with fifteen years' practical experience, employed by one of the country's largest textile mills, now closed. Was head of all dyehouses and bleachery, and in contact with every department. Has practical manufacturing knowledge of all fibers. Can show material savings through cooperation with purchasing department, also through devising new or improving old processes. Can furnish best of references. PW-365, Textile World, 330 West 42d Street, New York City.

MANAGER—SUPERINTENDENT

—OPEN FOR ENGAGEMENT—
HAS BACKGROUND OF 20 YEARS EXPERIENCE IN THE DESIGNING AND MANUFACTURING OF WORSTED AND WOOLEN FABRICS.

PW-373, Textile World
330 West 42d St., New York City

POSITIONS WANTED

WOOLEN mill manager, superintendent or designer. 30 years' experience on all types of men's wear fabrics. Thoroughly experienced in blending and manipulating all grades of wools, rags, wastes, etc., to produce a suitable fabric at the lowest possible price. PW-369, Textile World, 330 West 42d Street, New York City.

YOUNG MAN, with 12 years' practical hosiery dyeing experience, including 4 years as head dyer, desires to make a change. Excellent references. PW-364, Textile World, 520 No. Michigan Ave., Chicago, Ill.

BAND director, twenty-five years' experience. Seeking opportunity to develop a high grade employees band. PW-375, Textile World, 330 West 42d St., New York City.

REPRESENTATIVE WANTED

Hosiery and Underwear Trade

Wanted, well introduced agent, capable of representing a leading and well known German firm of Latch and Spring bearded needles. RW-358, Textile World, 330 West 42d St., New York City.

GLOVES

Competent manufacturers of knitted gloves seek buyers of large quantities of their woolen gloves and spring gloves. ***Agent also wanted.***

Box "Czecho-Gloves P. U. 1895."
c/o Rudolf Mosse, Prague I, Ovocny trh 19, Czechoslovakia

WANTED

PRODUCT TO MANUFACTURE

One of our clients, a New England manufacturer with sales organization contacting textile mills throughout the world, desires to manufacture and sell accessory of merit, preferably covered by strong patents, and applicable to existing looms or other textile machinery. Strictest confidence observed.

WILLIAM L. FLETCHER
8 Newbury Street Boston

FOR RENT OR SALE

5500 spindle southern combed yarn cotton mill equipped with twisters

Mill is in good condition. If interested, write for further details.
R. S. DICKSON & CO., Charlotte, N. C.

SALE OR RENT

DYE-HOUSE

Fully equipped modern skein rayon dyeing and winding plant, capacity 5000 lbs. per day, located in the heart of the textile district in Phila. Excellent opportunity for out of town concern to establish a Phila. branch.

ATLAS DYE WORKS
FRANKFORD, PHILADELPHIA, PA.

For Sale or Rent Cheap

WOOLEN MILL

1—2 set fully and well equipped, all ready to operate. For full particulars address

L. C. HARVEY, Oconto, Wis.

WOOLEN MILL
FOR SALE

Real Estate and Machinery. Location, Wales, Mass.

Suitable for manufacturing all types of woolen goods.
6 Sets of Woolen Cards, 1632 woolen spindles, 23 Crompton & Knowles broad looms, with Dyeing and Finishing Equipment.
Plant could be started immediately, as same is in first class running condition. Ideal location, with first class, all experienced textile help available.
For further information, phone, wire or write

JOHN J. McCLOSKEY, INC.,
Collingswood, N. J.
or
HARRY STEPHENSON
146 Summer St., Boston, Mass.

FOR SALE

MODERN WICK FURNITURE FACTORY, SPRINKLERED, APPROX. 70,000 SQ.FT.

G. L. HARTRANFT
MONTGOMERY, PENNA.

Thirty-Nine Years of Dependable and Confidential EMPLOYMENT SERVICE
for textile mills, converters and selling houses requiring managers, superintendents, stylers, designers, salesmen, overseers, second hands, fixers, etc.
'Phone, wire or write us your personnel requirements.
CHARLES P. RAYMOND SERVICE, Inc.
Phone: Liberty 6547 294 Washington Street, Boston, Mass.

Mr. Peter Smith

Announces

THE ESTABLISHMENT OF HIS OWN OFFICE THROUGH WHICH HE WILL CONTINUE SERVING THE TEXTILE INDUSTRY IN APPRAISALS—LIQUIDATIONS—ENGINEERING COUNSEL—SURVEYS—DISPOSAL OR AQUISITION OF MACHINERY AND EQUIPMENT—REAL ESTATE AND BUILDINGS.

192 ELWOOD AVENUE : : : : NEWARK, N. J.
TELEPHONE, HUMBOLDT 3-6345

WANTED

Franklin Process Raw Stock Dyeing Machine suitable for acid colors, either 250 or 500 pound capacity. Also one Squeeze Roll Machine.

CHENILLE RUG COMPANY
875 E. Henn, Minneapolis, Minn.

WANTED

For strict prompt cash

QUANTITY OF SCOTT & WILLIAM B.5. MACHINES

240, 260 or 300 x 3½-in. diameter

W-356, Textile World
Aldwych House, Aldwych, London, W.C.2

WANTED

SIZING MACHINE

1—5-drum, used, in good condition, either Van Vlaanderen or Johnson type, for rayon and acetate warp sizing. Please send full price to

W-355, Textile World
330 West 42nd Street, New York City

WANTED

Second Hand Balling Machines

North Chalmsford preferred, 9 spindle—11" gauge. Offer also anything similar.

W-372, Textile World
330 West 42d St., New York City

MACHINES WANTED

Scott & Williams Interlock Rib Machines, Full Automatic 14 cut in 14-17-19 and 21". **S & W Open Head Machines,** from 24-26-28 cut in 16-18".
Wildman Spring Needle Underwear Machines 28 cut, from 18 to 28".

W-377, Textile World
330 West 42d St., New York City

WANTED

60" GARNETT BREAST

Must be in good condition. State lowest cash price.

W-366 Textile World
330 West 42nd St., New York City

Will pay cash for Keyworth Thread Finishing Machines.

State condition, price, and complete specifications.

W-368, Textile World
330 West 42d St., New York City

BETTER sell your surplus machines **ABROAD**

All good knitters and auxiliary equipment interest me.
Write complete specifications.
P. E. VAZQUEZ
Apartado 974 **Mexico, D. F. (2)**

WANTED TO BUY

Embossing Machine to take goods up to 60 in. Give lowest price and full details. Address

W-349, Textile World
330 West 42nd Street, New York City

WANTED

SARGENT SUBMARINE YARN STEAMER

W-357, Textile World
330 W. 42nd St., New York City

WANTED

USED SILK BOX LOOMS

Up to 100, 2x1, either **Crompton and Knowles or Stafford,** in good condition, preferably built 1924 or later; reed with 50 in. to 56 in.; complete with dobby, for individual motor drive, etc., prompt cash payment offer for satisfactory lots. Write full details about such looms to

W-354, Textile World
330 West 42nd Street, New York City

WANTED

International, Steel Case Time Clocks and Card Racks. Give full particulars.

New York Machinery Company
27 W. 24th Street, New York, N. Y.

DISMANTLING
SHIPPING
ERECTING

ALL KINDS OF TEXTILE MACHINERY EXPERTLY HANDLED

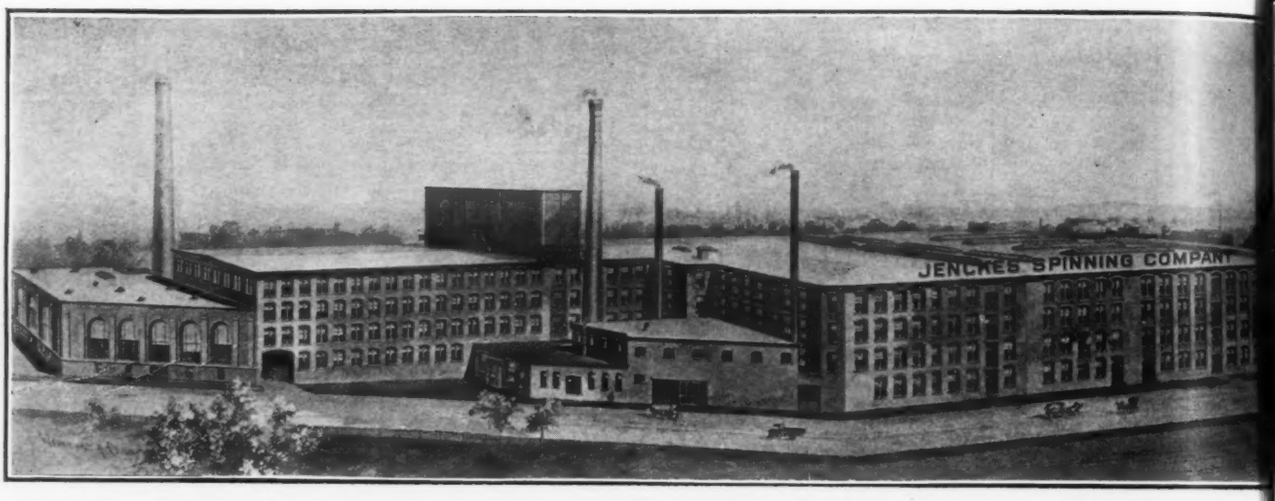
Domestic & Foreign Shipments

JOSEPH M. LASSONDE

LIST BUILDING, FALL RIVER, MASS.
P.O. Box 256. PHONES 806 and 2439

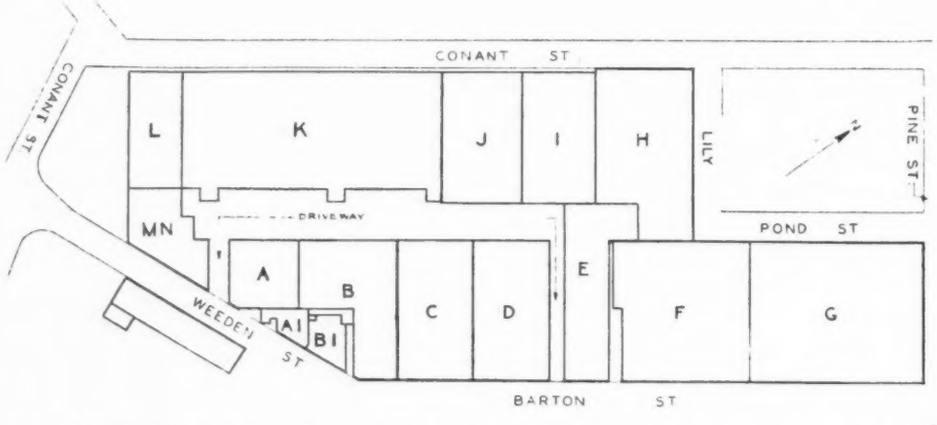
AUCTION SALE

12 o'clock noon *on the premises*



To be sold as a whole to

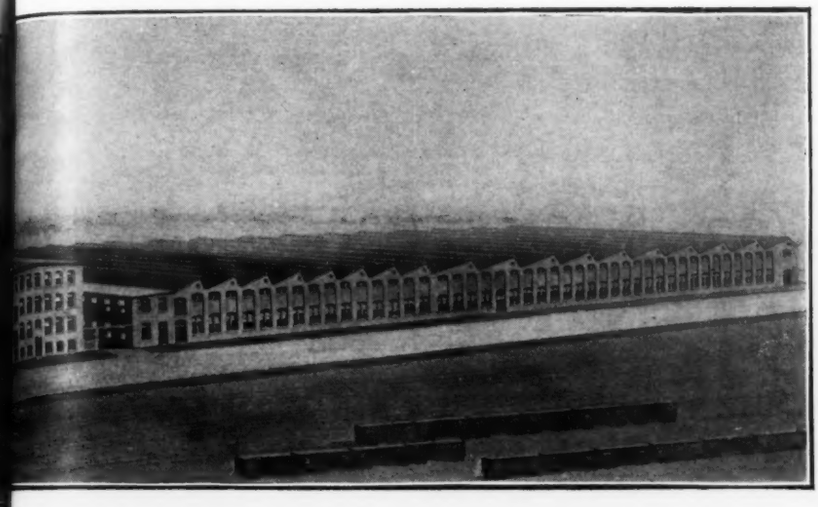
. . . an ideal proposition which lends itself to subdivision by the purchaser—only $6000 deposit required



A —4 stories and basement; total floor area, 50932 sq.ft.
A1 —1 story and basement; 5025 sq.ft.
B —4 stories and basement; 99753 sq.ft.
B1 —1 story; 3415 sq.ft.
C —4 stories; 81858 sq.ft.
D —4 stories with basement; 95197 sq.ft.
E —3 (and 4) stories and basement; 50540 sq.ft. and 21,568 sq.ft.
F —2 stories and garage; 66584 sq.ft. (garage—3100 sq.ft.)
G —2 stories; 102,471 sq.ft.
H —2 stories; 60,000 sq.ft.
I —5 stories and basement; 122,037 sq.ft.
J —4 stories and basement; 113,501 sq.ft.
K —4 stories and basement; 326,116 sq.ft.
L —5 stories and basement; 88,733 sq.ft.
MN—Power PLANT; 2 stories; 13,708 sq.ft.

December 19th, 1934

Weeden St., Pawtucket, R. I.



by order of

JAYTEE

CORPORATION

the HIGHEST BIDDER

THE following real estate of Jaytee Corporation, viz., a parcel of land (Pawtucket Assessors Plat 44, Lot 411) approximately 410,623 sq.ft., bounding on Weeden, Barton, Pine, Lily Pond and Conant Streets; together with the buildings thereon, consisting of a large group of modern brick mill buildings, including six (6) four-story buildings, one (1) five-story building, one (1) six-story building, one (1) three-story building and two (2) two-story buildings; also three (3) weaving sheds of two stories each, with saw tooth roof, the above enumerated buildings containing approximately 1,236,094 sq.ft. of floor space; also a modern two-story brick building, at present equipped for an electrical generating plant, with approximately 12,978 sq.ft. of floor space, and at present containing ten (10) Babcock & Wilcox boilers, each rated at 400 h.p., two (2) General Electric Turbo Generators with rated capacity of 5,500 k.w. and necessary auxiliary equipment (said generators, certain of said boilers and said auxiliary and other electrical equipment, however, being excepted from the sale as hereinafter provided); also a garage with approximately 1,197 sq.ft. of floor space with capacity for twelve cars.

Excepting and reserving from said sale, however, four (4) of said boilers (No. 7, 8, 9 and 10) and also said two (2) generators and all exciters, condensers, pumps, water heaters, meters, switchboards and panels, machinery, fixtures, tools and other equipment constituting part of, or auxiliary to, said electrical generating plant, which, however, the purchaser of the real estate will have an opportunity to purchase before the same is removed.

Jaytee Corporation is a subsidiary of Manville Jenckes Corporation and the above described property was formerly owned by Manville Jenckes Company.

All right, title and interest of Jaytee Corporation in and to the above described real estate (with the exceptions aforesaid) will be offered for sale at public auction to the highest bidder therefor on the premises on December 19, 1934, at 12 o'clock noon upon the following terms and conditions:

(1) Said real estate to be sold will be offered as an entirety for sale to the highest bidder, subject to taxes assessed as of June 15, 1934, by the City of Pawtucket which the purchaser shall assume and pay;

(2) The successful bidder will be required immediately upon acceptance of his bid to deposit with the Jaytee Corporation, or with the auctioneer, Six Thousand Dollars ($6000) in cash or certified checks, acceptable to the Jaytee Corporation, and made or endorsed payable to its order as a pledge that he will make good his bid and will assume and pay taxes as aforesaid, unless a smaller amount shall then be accepted by or in behalf of said Jaytee Corporation. If any successful bidder shall fail to make the required deposit forthwith upon request of said Jaytee Corporation or the auctioneer the acceptance of his bid shall thereupon become void and the auctioneer may thereupon immediately offer the property for resale upon the same terms and conditions as when first offered;

(3) If the successful bidder shall fail to pay the balance of the purchase price and all of said taxes within sixty (60) days after the date of the sale Jaytee Corporation may at its option treat the contract of sale as broken and may retain the deposit as liquidated damages;

(4) The purchaser, upon making full payment of the balance of the purchase price as aforesaid together with all of said taxes shall be entitled to receive delivery of a suitable deed conveying to such purchaser the property sold as aforesaid, and upon delivery thereof the grantee therein named shall be let into possession;

(5) Any bid shall be deemed to be made on reliance of the bidder's own knowledge and information as to the property purchased and all statements by Jaytee Corporation or its agents shall be advisory only and shall not constitute representations or warranties;

(6) Said sale will be made subject to the right of Jaytee Corporation to leave the above excepted and reserved property on the premises pending removal thereof by it at any time not later than sixty (60) days after the delivery of possession to the purchaser and to the right of Jaytee Corporation to have access to the property at all times prior to that date for the purpose of such removal;

(7) Jaytee Corporation reserves the right to adjourn said sale to another date to be announced by the auctioneer at the time of the sale herein advertised and, in like manner, to make further adjournments thereafter in its discretion.

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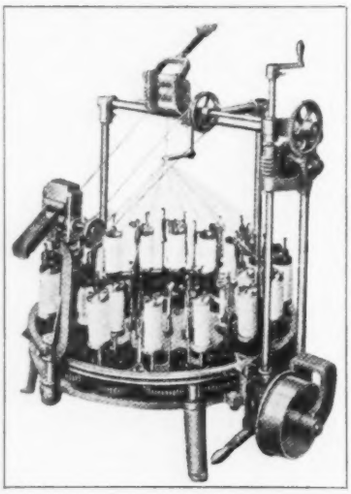

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100—25 carrier N.E. Butt Braiders.
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10—29 carrier N.E. Butt Braiders.
20—49 carrier N.E. Butt Braiders.
15—Sash Cord 12 carrier Braiders, N.E. Butt make.
50—16 carrier Heavy Duty No. 3 Braiders.
75—17 carrier Flat Braiders for tapes and elastics, N.E. Butt make.
15—13 carrier Flat Braiders for tapes and elastics, N.E. Butt make.
35—Vienna Oval—18 carrier Braiders.
70—Double Deck—16 carrier Braiders.
3000—Mossberg high speed carriers.
20—Rug Braiders, all sizes—3-5-7 carrier N.E. Butt make.
6—40 carrier N.E. Butt Braiders.
100—20 carrier N.E. Butt Braiders.
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2100—Textile make Braiders; 13-17-25-33-49-65-97 carrier Machines, Flat and Round.

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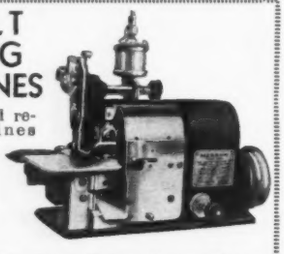

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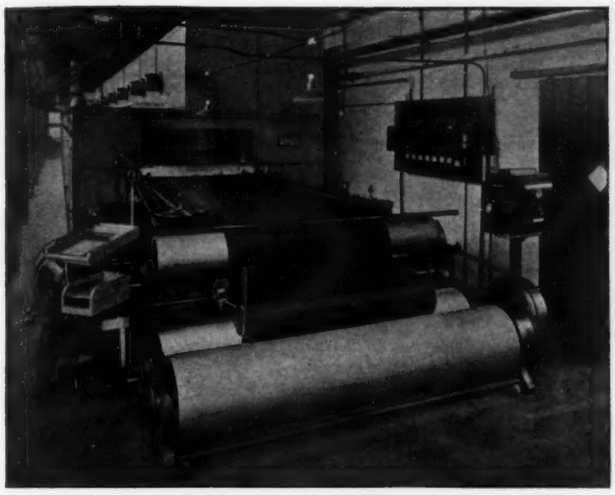

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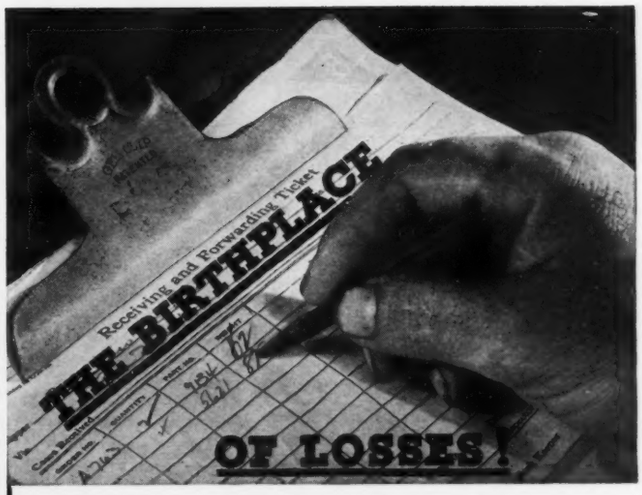

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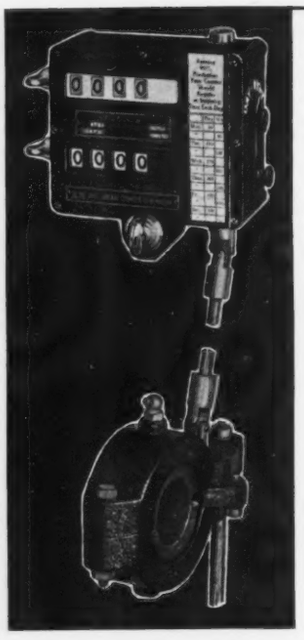

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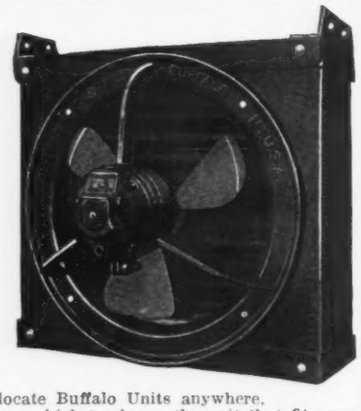

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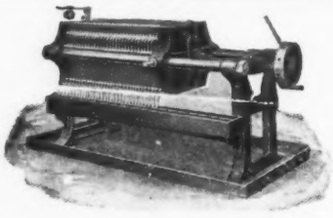

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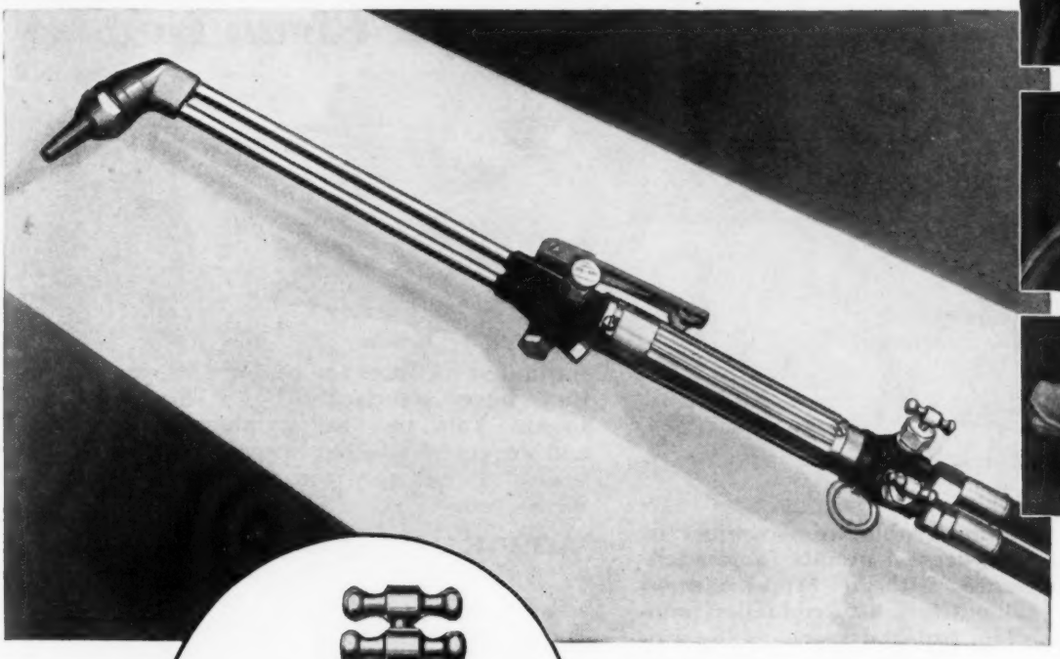
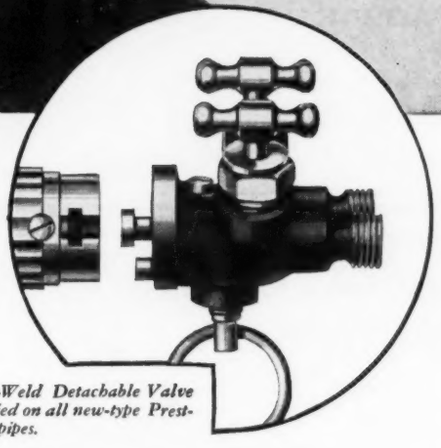


Above—*Ten seconds is all you need to change blowpipes.*



The Prest-O-Weld Detachable Valve Body is supplied on all new-type Prest-O-Weld Blowpipes.

cuts CUTTING COSTS

THE Prest-O-Weld Type C-105 Cutting Blowpipe keeps your gas bill low because at every point where leakage might occur it is built with special care. For example:

The valve seat is cone-shaped to prevent nicking—a frequent cause of leakage—when the blowpipe is accidentally dropped. It is also made without threads, which might strip and let acetylene escape. The tubes are silver-soldered to the head and cannot work loose even at high temperatures. A quick-acting cutting lever makes it easy to be economical with oxygen.

These refinements in design are typical of the thoughtful engineering that goes into the manufacture of all Prest-O-Weld Blowpipes. Built by engineers who are familiar not only with the scientific requirements of good blowpipes but also with the needs of the men who use them, Prest-O-Weld Blowpipes are the best medium pressure welding and cutting equipment your money can buy.

Your Prest-O-Weld jobber will be glad to show you the new Prest-O-Weld blowpipes.

The new Prest-O-Weld Type C-105 Cutting Blowpipe, for all cutting up to 12 in., is equipped with the Prest-O-Weld Detachable Valve Body. The head, cutting valve body, and lever are pressure forged for added strength. A 75-deg. angle head is furnished as standard, but a 90-deg. head can also be supplied.

Prest-O-Weld Type C-105 Cutting Blowpipe complete with 4 nozzles, lighter and wrench, $42.00

Prest-O-Weld Type C-105 handle assembly with 4 nozzles, lighter and wrench (same as above but without Detachable Valve Body), $34.00

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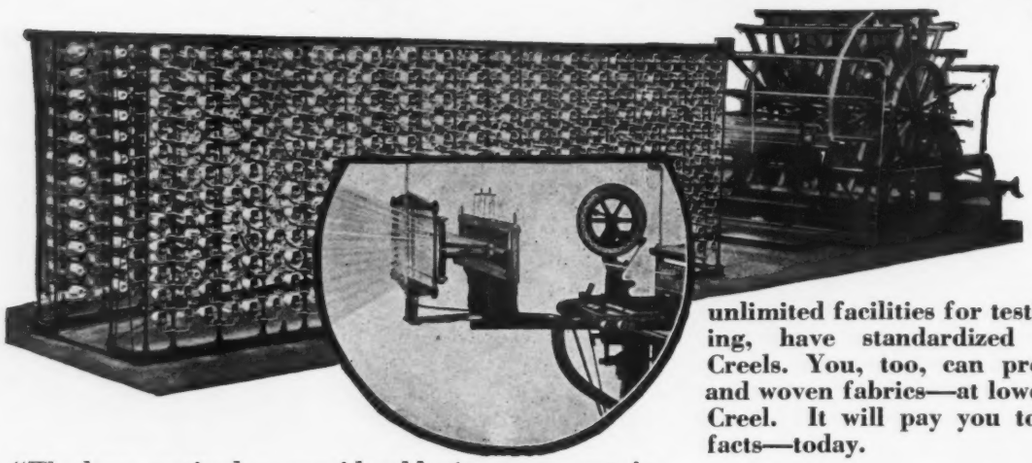

"We have noticed a considerable improvement in weaving" says a manufacturer of quality fabrics telling of their experience with a Sipp-Eastwood Over-end Magazine Cone Creel. "Production substantially increased. The finished merchandise ran cleaner and there were no knots."

Many of the largest mills in the United States with unlimited facilities for testing and experimenting, have standardized on Sipp-Eastwood Creels. You, too, can produce better warps and woven fabrics—at lower cost by using this Creel. It will pay you to write and get the facts—today.

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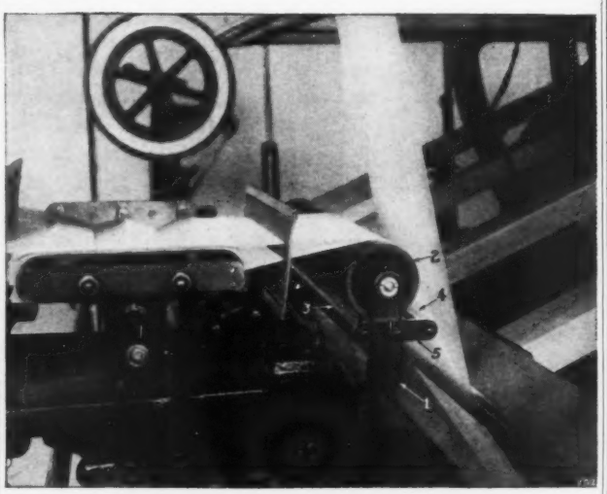

STOP STATIC!

Flying ends, and over-lapping and inaccurate spacing of sections are due to static, which is particularly prevalent at this season of the year.

The Sipp-Eastwood static eliminator neutralizes any electric charge in the yarn when rayon or silk is warped. It increases warping speed, produces better warps, and cuts costs.

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used extensively by

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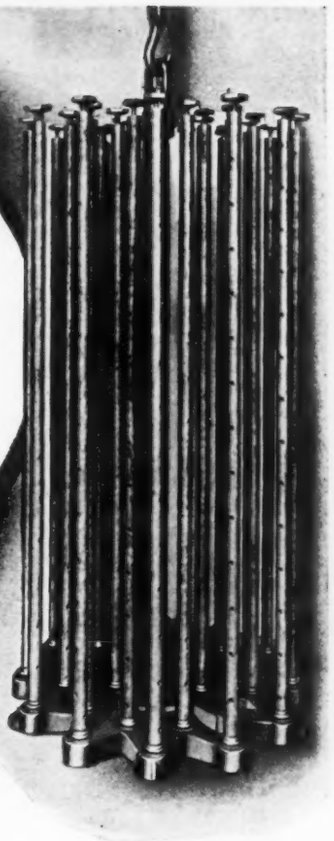

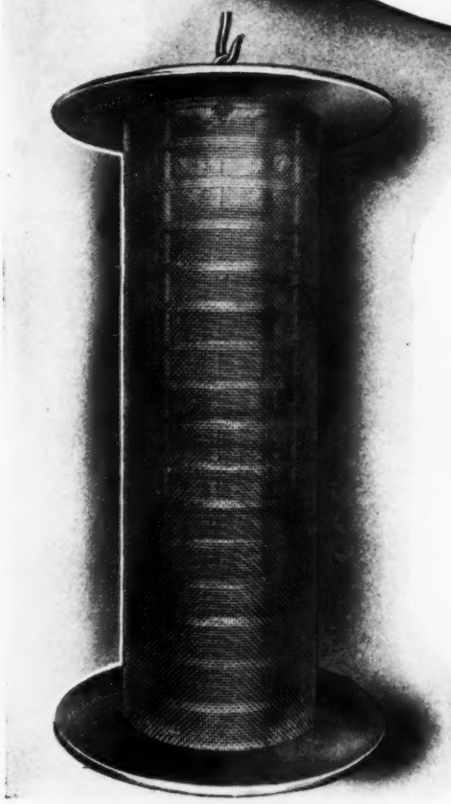

Heads, woven wire and rings of this Perforated Section Beam and (at the right) the base of the Roving and Yarn Package container . . . all are made of Ambrac Metal. Two items in a complete line manufactured by Abington Textile Machinery Works, Boston.

PERFORATED beams, which hold the yarn in circulating beam dyeing machines, must stand the wear and tear of heavy bulks. They must withstand handling strains . . . even when loaded with a moisture-soaked yarn mass...and remain in rigid formation. And they must be made of metal which will resist both acids and alkalies alike. To meet these conditions, Abington Textile Machinery Works uses Ambrac Metal for these and other parts.

Yarn and roving package containers are required to withstand the chemicals in bleach and dye liquors . . . must be made of corrosion-resisting metal. Here, also, "Abington" uses Ambrac.

Ambrac* is a high-strength, corrosion-resistant alloy composed principally of copper and nickel. Unlike other high-strength white metals, Ambrac is not refractory . . . but can be bent, stamped, spun, forged and drawn almost as easily as Brass. It spot welds perfectly, and resistant welds are remarkably strong. Ambrac castings are sharp and clean-cut, with excellent physical characteristics. Exclusively an Anaconda alloy...furnished by The American Brass Company in the form of sheets, rods, wire, tubes, forging blanks and casting ingots.

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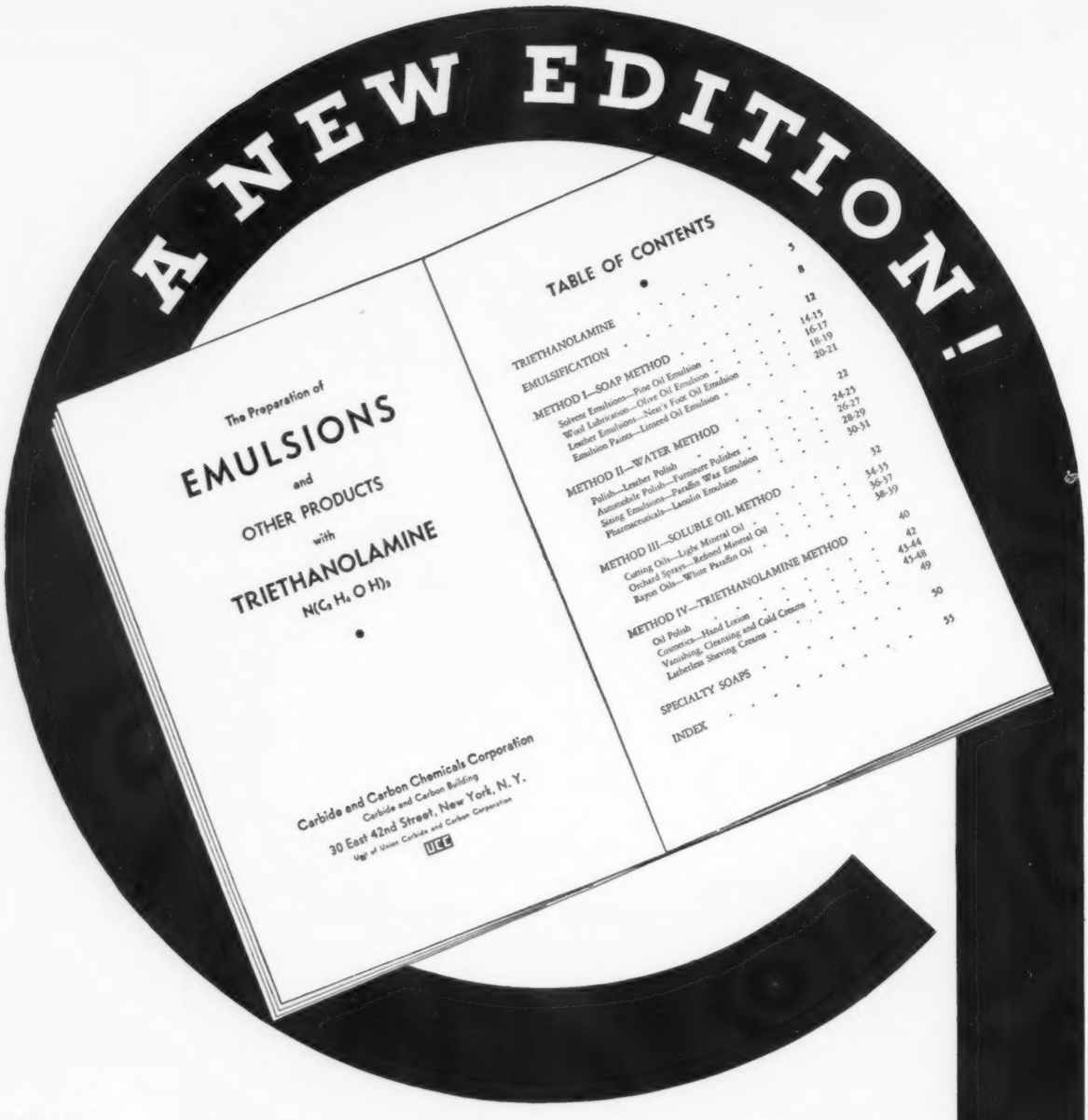

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